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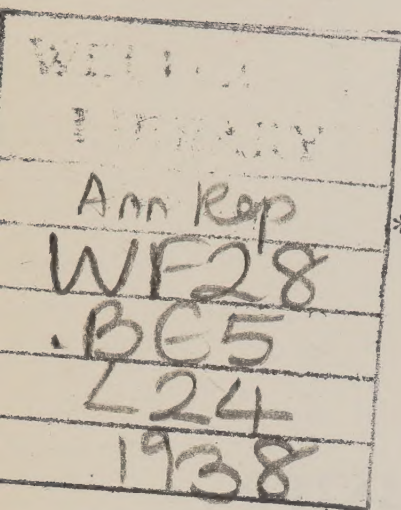


PREVENTION AND TREATMENT OF TUBERCULOSIS IN THE ADMINISTRATIVE COUNTY OF LANCASTER.

Report of the Central Tuberculosis Officer
of the Lancashire County Council
for the Year 1938.

F. Taylor & Co. (Blackpool) Ltd., Back Regent Road, Blackpool.
1939.

COUNTY TUBERCULOSIS COMMITTEE (1939).



The Chairman of the County Council :

*County Alderman Sir William Hodgson, J.P.

The Vice-Chairman of the County Council :

County Alderman P. Macdonald, J.P.

Chairman of Committee :

*County Councillor P. F. Mannix, M.D., M.Ch., B.A.O., J.P.

Vice-Chairman :

*County Councillor E. Clegg.

County Aldermen :

H. F. Jeffery, Esq., M.B., Ch.B.,
J.P.

*C. J. Trimble, Esq., C.B., C.M.G.,
L.R.C.P., D.P.H., J.P., D.L.

County Councillors :

*H. Bright, Esq.
J. H. Dawson, Esq., F.R.S.A., J.P.
F. H. Dodd, Esq.
G. E. Hardman, Esq., J.P.
M. F. Hendron, Esq., M.B., B.Ch.,
B.A.O.
*T. E. Jesson, Esq., J.P.
*Canon A. Kershaw, M.A.
*J. Kershaw, Esq.

W. J. Lucas, Esq., J.P., F.I.O.B.
W. T. Miller, Esq., J.P.
A. Ogden, Esq.
R. S. Robson, Esq., J.P.
R. Shorrocks, Esq.
*E. Smethurst, Esq.
*Sir Thomas Tomlinson, J.P.
*E. Tye, Esq.

* Members of the Sanatorium and Hospital Sub-Committee.

MEDICAL AND NURSING STAFF OF THE TUBERCULOSIS DEPARTMENT, October, 1939.

Central Tuberculosis Officer—G. LISSANT COX, M.A., M.D. (Camb.).

STAFF OF THE DISPENSARY AREAS AND COUNTY SANATORIA AND HOSPITALS.

Area No. 1. (Population 258,895).

(Lancaster, Morecambe and Heysham, Garstang Rural (part), Preston Rural, Walton-le-Dale, Chorley, and Horwich districts).

Consultant Tuberculosis Officer and Visiting Physician, Lancaster Pulmonary Hospital (36 beds)—G. H. LEIGH, M.D., Ch.B., D.P.H. (Manch.).

Assistant Tuberculosis Officer—F. C. S. BRADBURY, M.D., B.Ch. (Belf.), B.Hy., D.P.H. (Durh.).

Area No. 2. (Population 319,084).

(Clitheroe, Colne, Nelson, Burnley Rural, Blackburn Rural, Accrington, Darwen, Haslingden, Rawten-stall, and Bacup districts).

Consultant Tuberculosis Officer and Visiting Medical Superintendent, Withnell Pulmonary Hospital (52 beds)—B. MACPHEE, M.B., Ch.B. (Glas.), D.P.H. (Camb.).

Assistant Tuberculosis Officers—S. C. ADAM, M.B., Ch.B. (Glas.), D.P.H. (Lond.); and D. O. HUGHES, M.D., Ch.B., D.P.H. (Liverp.) (2 days per week).

Area No. 3. (Population 384,058).

(Ramsbottom, Littleborough, Radcliffe, Heywood, Crompton, Prestwich, Middleton, Chadderton, Failsworth, Ashton-under-Lyne, Mossley, and Denton districts).

Consultant Tuberculosis Officer and Visiting Medical Superintendent, Wolstenholme Pulmonary Hospital (55 beds)—G. FLETCHER, M.A., M.D. (Glas.), M.R.C.P. (Lond.), D.P.H. (Camb.).

Assistant Tuberculosis Officers—J. L. ARMOUR, M.B., Ch.B. (Liverp.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.P.H. (Manch.); and W. FETTES, M.B., Ch.B., D.P.H. (Aberd.).

Area No. 4. (Population 371,926).

(Westhoughton, Atherton, Farnworth, Leigh, Swinton and Pendlebury, Eccles, and Stretford districts).

Consultant Tuberculosis Officer and Visiting Medical Superintendent, Peel Hall Pulmonary Hospital (57 beds)—G. JESSEL, M.A., M.D. (Oxon.), D.P.H. (Manch.), A.R.P.S.

Assistant Tuberculosis Officers—A. B. JAMIESON, M.B., Ch.B. (Edin.); and H. J. VILLIERS, L.R.C.P.I., L.R.C.S.I.

Area No. 5. (Population 310,025).

(West Lancashire Rural, Crosby, Newton-le-Willows, Whiston Rural, Warrington Rural, and Widnes districts).

Consultant Tuberculosis Officer and Visiting Medical Superintendent, Rufford Pulmonary Hospital (52 beds)—C. W. LAIRD, B.A., M.D. (Dub.), D.P.H. (Liverp.).

Assistant Tuberculosis Officers—C. BERRY, L.R.C.P., L.R.C.S. (Edin.), L.R.F.P.S. (Glas.), D.P.H. (R.C.P.S.I.); and J. N. WHYTE, M.D., B.Ch., B.A.O., D.P.H. (Belf.).

MEDICAL STAFF—contd.

High Carley Sanatorium (130 beds), Oubas House Children's Sanatorium (21 beds), and Furness Dispensary Area (Population 38,122).

(Dalton-in-Furness, Grange-over-Sands, Ulverston, and Ulverston Rural districts).

Medical Superintendent and Consultant Tuberculosis Officer—G. LEGGAT, M.B., Ch.B., D.P.H. (Aberd.).

Assistant Medical Superintendent—C. V. STEVENSON, M.B., B.Ch., D.P.H. (Belf.).

Junior Assistant Medical Officer—G. A. WILTHEW, B.Sc., M.B., B.S. (Durh.).

Elswick Sanatorium (70 beds) and Fylde Dispensary Area (Population 89,548).

(Fleetwood, Thornton Cleveleys, Lytham St. Annes, Fylde Rural, Garstang Rural (part), and Kirkham districts).

Medical Superintendent and Consultant Tuberculosis Officer—G. B. CHARNOCK, L.R.C.P., L.R.C.S. (Edin.), L.R.F.P.S. (Glas.), D.P.H. (Liverp.).

Assistant Tuberculosis Officer—D. O. HUGHES, M.D., Ch.B., D.P.H. (Liverp.) (3½ days per week).

Wrightington Hospital (226 beds) and Wigan County Dispensary Area (Population 108,942).

(Ashton-in-Makerfield, Hindley, Ince-in-Makerfield, and Wigan Rural districts).

Medical Superintendent and Consultant Tuberculosis Officer—E. H. A. PASK, M.D. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.).

Assistant Tuberculosis Officer—E. H. W. DEANE, M.B., B.S. (Melbourne).

Assistant Medical Superintendent—J. DOBSON, M.R.C.S. (Eng.), L.R.C.P. (Lond.).

Junior Assistant Medical Officer—G. M. SLEGGS, M.B., Ch.B., M.Ch. Orth. (Liverp.)

Chadderton Pulmonary Hospital (44 beds).

Visiting Medical Superintendent—E. T. HOLDEN, M.B., Ch.B. (Birm.), M.R.C.S. (Eng.), L.R.C.P., D.P.H. (Lond.).

Heath Charnock Pulmonary Hospital (39 beds).

Visiting Medical Superintendent and Medical Officer to the Chorley Joint Hospital Board—J. RIGBY, M.B., Ch.B., D.P.H. (Manch.).

Lancaster, Withnell, Wolstenholme, Peel Hall and Rufford Pulmonary Hospitals.

The Consultant Tuberculosis Officers of Dispensary Areas Nos. 1, 2, 3, 4 and 5, respectively, are the Visiting Medical Superintendents of these Hospitals, as mentioned in the foregoing list of staff.

CONSULTING SURGICAL STAFF.

Professor H. PLATT, M.D. (Manch.), M.S. (Lond.), F.R.C.S. (Eng.), and
 Professor T. P. McMURRAY, M.Ch., F.R.C.S. (Edin.),
Visiting Consulting Orthopaedic Surgeons, Wrightington Hospital.

H. H. BYWATER, M.D. (Manch.), D.Ch.O. (Liverp.), F.R.C.S. (Edin.),
Visiting Consulting Ophthalmic Surgeon, Wrightington Hospital.

C. A. WELLS, M.B., Ch.B. (Liverp.), F.R.C.S. (Eng.), L.R.C.P. (Lond.),
Visiting Consulting Urological Surgeon, Wrightington Hospital.

H. MORRISTON DAVIES, M.D., M.Ch. (Camb.), F.R.C.S. (Eng.).
*Visiting Consulting Chest Surgeon, Elswick and High Carley Sanatoria
 and Peel Hall Pulmonary Hospital.*

F. R. EDWARDS, M.B., Ch.M. (Liverp.), F.R.C.S. (Eng.), L.R.C.P. (Lond.),
*Junior Visiting Consulting Chest Surgeon, Elswick and High Carley
 Sanatoria and Peel Hall Pulmonary Hospital.*

J. HALTON, M.B., Ch.B. (Liverp.),
Visiting Anaesthetist, High Carley Sanatorium.

VISITING DENTAL SURGEONS.

<i>High Carley and Oubas House Sanatoria</i>	A. MILLER, L.D.S. (R.C.S., Eng.).
<i>Elswick Sanatorium</i>	R. D. ALLISON, L.R.C.P., L.R.C.S. (Edin.), L.R.F.P.S. (Glas.), L.D.S. (R.C.S., Edin.).
<i>Wrightington Hospital</i>	J. J. WARD, L.D.S. (R.C.S., Eng.).

MATRONS.

High Carley and Oubas House Sanatoria	.....	.....	E. WOOSEY.
Elswick Sanatorium	.....	.....	A. JONES.
Chadderton Pulmonary Hospital	.....	.....	I. FELSTEAD.
Heath Charnock Pulmonary Hospital	.....	.....	H. SINCLAIR.
Lancaster Pulmonary Hospital	.....	.....	A. PATCHETT.
Peel Hall Pulmonary Hospital	.....	.....	E. SIMMONS.
Rufford Pulmonary Hospital	.....	.....	S. HOLMES.
Withnell Pulmonary Hospital	.....	.....	D. WILLMAN.
Wolstenholme Pulmonary Hospital	.....	.....	E. G. GLASS.
Wrightington Hospital	.....	.....	E. MOSELEY.

TUBERCULOSIS HEALTH VISITORS.

Area No. 1	.....	*L. Walker, *F. D. Abbott, A. Dickinson, G. M. Hunter.
Area No. 2	.....	*M. Duggan, L. F. Norwood, E. Watterson, *H. M. Alcock, E. H. Scott, L. M. Lloyd.
Area No. 3	.....	*I. F. Macdonald, *C. Guilfooy, *A. Flynn, W. Swift, M. Sherwen, E. Sandham, *A. E. Webster.
Area No. 4	.....	M. B. Jones, *H. M. Shakespeare, F. G. Smith, K. Blakemore, A. Boardman, M. Sutcliffe, I. Wilkinson.
Area No. 5	.....	*M. J. Wilson, *L. Farquhar, I. M. Corfield, *M. J. McKeown, E. M. Crone.
Furness Area	.....	E. A. Duston.
Fylde Area	.....	*A. Tweedy.
Wigan County Area		*E. Walters, M. J. Evans.

*Possesses a health visitor's or sanitary certificate.

SENIOR ADMINISTRATIVE STAFF.

H. F. HUGHES, M.A., F.S.S. (Chief Clerk).

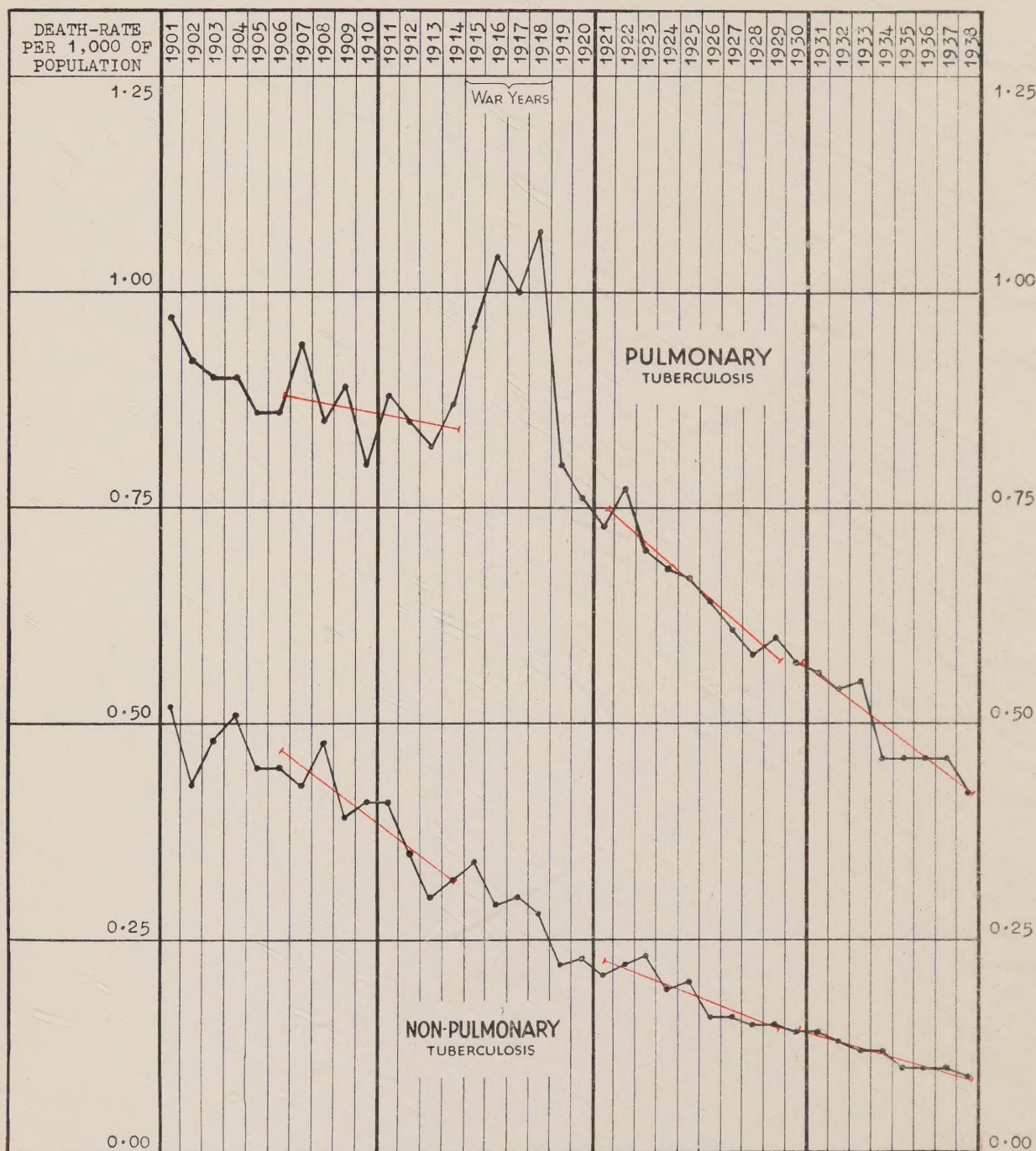
E. W. MANN (Assistant Chief Clerk and Chief Steward).

J. W. JOLLY (Principal Clerk, class 3) ; H. BRADSHAW, I. PARKER, and
E. F. B. HINDLE (Senior Clerks).

For senior dispensary and sanatorium clerical staff, see column (4) of
folding Table A opposite page 46.

ADMINISTRATIVE COUNTY OF LANCASTER.

Chart showing (a) the death-rates per 1,000 of the population from pulmonary and non-pulmonary tuberculosis, 1901-38, and (b) "lines of best fit" (in red) applied to the rates for the three nine-year periods 1906-14, 1921-29 and 1930-38.



For observations on the chart, see page opposite.

The "lines of best fit," i.e., the charted rates in the nine-year periods reduced mathematically to a straight line, indicating the trend of the death-rates during the particular period dealt with, have been calculated by the method of least squares.

(Chart drawn in Tuberculosis Department).

REPORT

OF THE

CENTRAL TUBERCULOSIS OFFICER

FOR THE YEAR 1938.

*To the Chairman and Members of the
Lancashire County Council.*

LADIES AND GENTLEMEN,

I have the honour to submit the twenty-fifth annual report on the work of the Tuberculosis Department, and in this introductory portion will give briefly some of the principal features of the work in 1938.

Tuberculosis incidence and mortality.

The number of new cases of pulmonary tuberculosis reported in 1938 is the lowest on record. The death-rate from pulmonary tuberculosis in 1938 (0·42 per 1,000 of the population) is also the lowest on record.

With regard to non-pulmonary tuberculosis, the death-rate of 0·09 per 1,000 of the population is the lowest recorded and is now less than one-third of the rate in 1914. The number of new cases of non-pulmonary tuberculosis reported during the year shows an increase of 58 over the previous year.

The chart opposite gives the death-rates from pulmonary and non-pulmonary tuberculosis in the Administrative County since 1901. In order to show the trend of the rates during the past nine years compared with the two nine-year periods 1921-29 and 1906-14, I have had calculated the "lines of best fit" for these periods. These lines of best fit, which are the rates smoothed out mathematically into a straight line (coloured red on chart), show that the decline in the mortality from pulmonary tuberculosis was much greater for the years 1921-29 than

during 1906-14, when the death-rate was nearly stationary. This decline in 1921-29 has been continued on almost the same scale during 1930-38. For non-pulmonary tuberculosis, with the greatly reduced death-rates, the decline in mortality during the periods 1921-29 and 1930-38 is not so pronounced as in the pre-war years 1906-14.

The following are the death-rates in 1938 from tuberculosis (all forms) per 1,000 of the population in the Administrative County, in counties with a population in the region of 1,000,000 and in England and Wales :—Lancashire, 0·52 ; Durham, 0·66 ; Essex, 0·50 ; Kent, 0·56 ; Middlesex, 0·53 ; Surrey, 0·48 ; West Riding of Yorkshire, 0·48 ; and England and Wales, 0·63.

Tuberculosis is the cause of a large proportion of sickness among the working population. The figures for England are not, so far as I am aware, available, but Dr. A. B. Walker, Regional Medical Officer of the Department of Health for Scotland, in a paper "The Duration of Incapacitating Sickness" published in the Journal of the Royal Sanitary Institute, January 1939, stated that among the insured population of Scotland during the year ended 30th June, 1936, tuberculosis (all forms) was one of the six "principal causes giving rise to chronic incapacities" (*i.e.*, incapacities current over any entire statistical year), and was responsible for "approximately 11 per cent. of the total cases." Bronchitis was responsible for "approximately 8 per cent."

Chairmanship of the Committee.

County Alderman E. Boothman, owing to ill-health, relinquished the Chairmanship of the County Tuberculosis Committee in March, 1938, after holding the position since March, 1935. He was a member of the Committee since its inception in February, 1914, and was Vice-Chairman from 1926 to 1935. The Committee have placed on record how much they valued the able and untiring services rendered by Alderman Boothman in connection with the County tuberculosis scheme. I regret to report that Alderman Boothman died on the 20th February, 1939.

County Councillor Canon A. Kershaw, who was appointed Chairman on the resignation of Alderman Boothman, asked to be released from nomination for re-election to the Chairmanship in April, 1939, on medical advice. The Committee have recorded their high appreciation of the services rendered by Canon Kershaw during the relatively short time he occupied the chair, and they hope he will soon be restored to health and resume active work in and for the tuberculosis scheme.

County Councillor Dr. P. F. Mannix, who has been a member of the Committee since 1930, has been appointed Chairman.

*Rota of visits by Members of the Committee to sanatoria,
hospitals and dispensaries.*

A rota of visits by members of the County Tuberculosis Committee to the principal sanatoria and hospitals to which County patients are sent has again been drawn up with the object of affording the members an opportunity of seeing, at first hand, the actual work which is being carried out at these institutions for the prevention and treatment of tuberculosis.

Further, two of the monthly meetings of the Committee were held at County institutions (Wolstenholme and Elswick), when the opportunity was taken to make an inspection of the buildings and grounds.

The tuberculosis scheme.

The Lancashire County Council scheme covers the whole of the Administrative County (population 1,880,600, area 1,038,130 acres). A special feature of the scheme, and of fundamental importance, is the method whereby the dispensary work is combined with the hospital or sanatorium work. The County has been divided into (i) five large dispensary areas or units, average population 328,000, each with a small sanatorium-hospital; and (ii) three small dispensary areas surrounding the three largest institutions, the area and the institution together forming a unit. By this organisation the whole County is served by team work; each tuberculosis officer has beds like any private consultant, and the divorce so common between the dispensary unit and the institutional unit does not occur.

Each area is in the charge of a consultant tuberculosis officer with medical assistants, nursing staff, and clerical staff. Ordinary symptomatic treatment is not undertaken at the dispensaries, the tuberculosis officers being concerned with the diagnosis and special treatment of patients, and measures for the prevention of the disease. The County Council own or lease 24 tuberculosis dispensaries situated in convenient centres in the County, and own or rent accommodation at sanatoria and hospitals for 981 beds, of which 750 are at eleven County sanatoria and hospitals. Treatment is, and always has been, provided free of cost. The number of cases of tuberculosis on the dispensary registers on the 31st December, 1938, was 7,493.

The net expenditure on tuberculosis services for 1938-39 was £211,120 equal to a rate of 4·95d. in the £. Towards the expenditure there is now an amount included in the General Exchequer Grant receivable under the Local Government Act, 1929 ; it is not specifically allocated to the tuberculosis service, but is a general credit to the County Fund. Previous to the passing of the Act the Government made an annual grant based upon 50 per cent. of the net approved expenditure ; for 1928-29 their grant amounted to £74,105.

Co-operation with medical practitioners, health officials, and other bodies.

The results of the tuberculosis scheme would be very different if the relations with the medical practitioners in the County, together with the medical officers and sanitary inspectors of County district councils had not been of the most cordial and satisfactory character. I take this opportunity to acknowledge such co-operation from these sources. It is most satisfactory that 92 per cent. of new cases (excluding contacts) were sent *before notification* to the tuberculosis officers for an opinion as to diagnosis or treatment.

Co-operation also takes place with the Public Assistance Committee and the Unemployment Assistance Board in the granting of relief to necessitous tuberculous persons and their dependants, and with approved societies on matters relating to insured tuberculous persons.

Special contributions by the staff.

The following special contributions by members of the staff are printed in this report :—

Tuberculosis in the Adolescent, by Dr. G. Jessel (pages 5 to 14).

Recent Methods in the Treatment of Pulmonary Tuberculosis, by Dr. G. Leggat (pages 15 to 19).

Typing of Tubercle Bacilli from Post-mortem Material, by Dr. E. H. A. Pask (pages 120 to 122).

Cultivation of Tubercle Bacilli, by Dr. C. V. Stevenson (page 98).

The Boarding-out of Young Children, by Nurse A. Tweedy and Nurse I. F. Macdonald (pages 20 to 24).

Thoracic surgery.

Thoracic surgery, major and minor, continues to play an important part in the treatment of pulmonary tuberculosis and, as appears in the detailed paragraph opposite, 21 per cent. of all the living pulmonary cases

on the dispensary registers have had this treatment. Mr. H. Morriston Davies, the visiting consulting chest surgeon, and his assistant, Mr. Ronald Edwards, pay periodical visits to the High Carley Sanatorium, where is concentrated all the major thoracic surgery work for the whole County. The international reputation of Mr. Morriston Davies is sufficient to indicate the standard of the work performed at High Carley ; the results are discussed at some length on pages 91 to 97, and comprehensive tables and statistics are given.

Visits are also paid to Elswick Sanatorium and Peel Hall Pulmonary Hospital, where division of adhesions and phrenic nerve operations are performed. In addition, Mr. Morriston Davies gives his advice on individual cases and problems submitted in consultation by the staff, and meets from time to time the whole staff in conference.

The following statement shows the number of living patients on the dispensary registers on the 31st December, 1938, who had undergone surgical treatment for their chest condition :—Artificial pneumothorax 569 ; artificial pneumothorax with division of adhesions, 52 ; phrenicectomy or phrenic crush, 107 ; phrenicectomy or phrenic crush after artificial pneumothorax, 163 ; thoracoplasty 19 ; thoracoplasty after artificial pneumothorax, 10 ; apicolysis, 1 ; extra pleural pneumothorax, 2 ; extra pleural pneumothorax with artificial pneumothorax, 1 ; total, 924 ; representing 21·3 per cent. of the 4,331 pulmonary cases on the registers.

X-ray examinations.

The provision of x-ray plants for the diagnosis and treatment of cases of tuberculosis is as essential as the provision of the stethoscope and thermometer. The use made of x-rays in this County in 1938 is shown by the following figures :—At County dispensaries 13,054 x-ray examinations were made, and 12,273 at County sanatoria and hospitals. The x-ray examinations of dispensary patients represent 1,333 per 100 deaths from tuberculosis.

Air raid precautions.

The County Tuberculosis Committee are keeping in constant touch with air raid precautions requirements at their tuberculosis institutions, some of which may during the war be required to take air raid casualties evacuated after treatment from the main casualty hospitals in the towns.

The County sanatoria and hospitals are graded for vulnerability*, and classified in the Emergency Hospitals Scheme†, as follows :—Chadderton Pulmonary Hospital, A.,2 ; Elswick Sanatorium, D.,2 ; Heath Charnock Pulmonary Hospital, B.,2 ; High Carley Sanatorium, D.,2 ; Oubas House Children's Sanatorium, D.,2 ; Peel Hall Pulmonary Hospital, A.,2 ; Rufford Pulmonary Hospital, C.,2 ; Withnell Pulmonary Hospital, A.,2 ; Wolstenholme Pulmonary Hospital, A.,2 ; Wrightington Hospital, B.,1A.

* In the grading for vulnerability : A=greatest vulnerability ; D=least vulnerability.

† In the Emergency Hospitals Scheme, Class 1A comprises larger hospitals which have, or can without great difficulty be given, facilities for dealing with casualties both medical and surgical. Class 2 comprises hospitals which are not suitable for undertaking the initial reception of casualties and which it is not considered desirable to equip for the purpose; they will take cases transferred from class 1 hospitals (*i.e.*, casualty hospitals).

A systematic inspection of each sanatorium and hospital has been made with the special object of ensuring that all necessary steps are taken to provide protection for the patients and staffs and to minimise the risk of damage to buildings. To September, 1939, work had been carried out at Chadderton, Peel Hall, Rufford, Withnell, and Wolstenholme. Augmented stocks of food, fuel, drugs and dressings have been accumulated so that any temporary dislocation of supplies can be surmounted.

Hutments at Wrightington Hospital for air raid casualties.

The County Council have agreed to lease to the Minister of Health a plot of land, containing about 7,040 square yards, at the Wrightington Hospital for a term of 25 years, terminable at 7th, 14th or 21st year, at a peppercorn rental, on which will be erected seven wooden hutments for air raid casualty accommodation. Each hutment will accommodate about 36 beds, together with the usual ancillary accommodation, and the erection and maintenance will be undertaken by H.M. Office of Works ; no cost will fall upon the County Council in respect thereof.

The War.

The bulk of this report had been set up in type before the 3rd September. The Emergency Hospitals Scheme of the Ministry of Health has already affected the Wrightington Hospital, and may affect the other sanatoria and hospitals. The work of the department has been increased, because not only has the normal work of treatment and diagnosis to continue but the large number of evacuees from outside areas are naturally producing cases which have to be examined by the tuberculosis officers, and visited by the tuberculosis health visitors.

Progress and future requirements in the tuberculosis scheme.

Below is a statement of the progress made and the requirements at dispensaries, sanatoria and pulmonary hospitals :—

Widnes Dispensary. On the 13th December, 1938, the new branch dispensary in Chapel Street was opened in replacement of the unsatisfactory premises, Brendan House, Widnes Road.

Middleton Dispensary. This dispensary was closed on the 31st January, 1939, on account of the declining number of patients and the provision of the new dispensary at Chadderton, which is convenient of access to the Middleton patients.

Ashton-under-Lyne Dispensary. The new premises in Lees Street were officially opened on the 17th May, 1939, by County Councillor Canon A. Kershaw. The assembly represented the urban and rural districts served by the dispensary, the medical practitioners in the area, the voluntary care committee, and other bodies. In the evening the dispensary was open to the public for their inspection.

Seaforth Dispensary. In order to replace the existing dispensary in Claremont Road, Seaforth, which is inadequate for present needs, the premises "Ellesmere," Crosby Road North, Waterloo, were purchased on the 30th June, 1938. The house is being adapted and extended, and work was commenced on the 29th December, 1938.

Eccles Dispensary. The premises 28 and 30, Gilda Brook Road, Eccles, where the centralised medical work for Area No. 4 is done, are proving too small for the expansion of such work, and removal to more commodious premises will have to be considered.

Elswick Sanatorium. On the 3rd August, 1939, the County Council approved the purchase of this sanatorium from the Fylde, Preston and Garstang Joint Smallpox Hospital Board for the sum of £18,500, and the sanction of the Ministry of Health is awaited. The institution was previously held on lease from the Joint Hospital Board since 1914. A scheme is in hand for providing better accommodation for the nursing and domestic staffs, and a chapel-concert hall; the sewage works on the estate are being enlarged.

High Carley Sanatorium. The extensions and improvements at this sanatorium (see page 90) were completed in September, 1939.

Withnell Pulmonary Hospital. There is need of additional accommodation for the nursing and domestic staffs, and a scheme to this end is in course of preparation.

Wrightington Hospital. A scheme to provide some 30 extra beds for adult males and females suffering from non-pulmonary tuberculosis was included in the programme of capital works sent to the Ministry of Health.

Owing to A.R.P. work having to take precedence, schemes for certain improvements at dispensaries, sanatoria, and hospitals have been delayed.

Visits of medical officers.

I beg to report that the following visitors came to Lancashire to study the County tuberculosis scheme :—

Dr. H. N. Davies, Colonial Medical Services, Tanganyika. Visited Central Office on the 25th October, 1938.

Dr. M. H. Watt, C.B.E., Director-General of the Department of Health of New Zealand. Visited Central Office on the 23rd February, 1939.

Dr. C. E. Bevan, Government Tuberculosis Officer of Cyprus. Visited in April, 1939, Central Office; Ashton-under-Lyne, Fleetwood and Ulverston Dispensaries; Elswick, High Carley and Oubas House Sanatoria; Wolstenholme Pulmonary Hospital; and Wrightington Hospital.

Institution staffs.

The County Tuberculosis Committee in July, 1939, appointed four representatives to confer with representatives of the Public Assistance Committee and the Public Health and Housing Committee on a revised scale of salaries for the nursing staffs engaged at the several sanatoria, hospitals, and other institutions under the control of that County Council. At the tuberculosis institutions there is a serious shortage of probationer nurses and staff nurses.

The review of the remuneration and service conditions of the domestic indoor staff (cooks, laundresses, maids, etc.) and the male outdoor staff (engineers, gardeners, and stokers), begun in conjunction with the Public Assistance Committee some twelve months ago, has now been completed. The scales of the Lancashire and Cheshire Whitley Council have formed the basis of the revision of the grading of employees; several conferences with representatives of that Council have been held, and many individual employees in grades not specifically covered by the existing scales of the Whitley Council were discussed and classified. Only four employees (chauffeurs) remain for settlement, the Whitley Council not yet being in a position to make a recommendation for this grade.

Retirement of nurses on superannuation.

I beg to report that the following members of the tuberculosis staff retired on superannuation on the dates given below :—

Miss H. Dewsnap (tuberculosis health visitor), 29th May, 1939; Miss E. Walch (tuberculosis health visitor), 1st June, 1939; Miss A. Goodall (sister, Chadderton Hospital), 1st June, 1939; Mrs. J. Skelcher (tuberculosis health visitor), 28th July, 1939; Miss M. A. Potter (tuberculosis health visitor), 6th September, 1939; Miss R. Lambert (tuberculosis health visitor), 11th September, 1939.

The County Tuberculosis Committee have expressed their appreciation of the valuable services rendered by these nurses during their long period with the Lancashire County Council.

I have again to thank my medical colleagues, and the nursing and clerical staffs for continued help. I have had valuable administrative assistance from my chief clerk, Mr. H. F. Hughes, M.A., F.S.S., including much work in preparing this report, and have, in addition, to thank the Public Health Department for their co-operation.

I am,

Your obedient Servant,

G. LISSANT COX,

Central Tuberculosis Officer.

County Offices, Preston,

13th October, 1939.

I.—TUBERCULOSIS INCIDENCE AND MORTALITY

IN 1938.

The principal features of tuberculosis incidence and mortality in 1938 in the Administrative County, which contains an estimated population of 1,880,600, are as follow:—

1. The death-rate (0·42 per 1,000 of the population) from **pulmonary** tuberculosis in the County is the lowest on record, and continues below the pulmonary rate (0·53) for England and Wales.

2. The new pulmonary cases reported in 1938 were 1,268, the lowest figure yet recorded.

3. Pulmonary tuberculosis is again more prevalent among males than females in regard to both cases and deaths. Allowing for the difference in the population of the sexes, for every 100 deaths of females in 1938 there were 158 deaths of males, and for every 100 female notifications there were 146 male notifications.

4. In 1938 the largest number of deaths from pulmonary tuberculosis among females occurs in the age-group 15-25, followed by the age-group 25-35 (see Table 4, page 4).

5. The greatest mortality from pulmonary tuberculosis among males in 1938 occurs in the age-group 45-55, followed by the age-groups 35-45 and 25-35.

6. The death-rate (0·09 per 1,000 of the population) from **non-pulmonary** tuberculosis is the lowest figure yet recorded, and is now less than one-third of the rate recorded in 1914. The rate for England and Wales is 0·10 in 1938.

7. The number of new cases of non-pulmonary tuberculosis reported in 1938 shows an increase of 58 over the previous year.

8. With regard to non-pulmonary tuberculosis, the most striking decline has occurred in the age-group 0-5 years; in 1914 the deaths in this group totalled 286, whereas in 1938 there were only 54.

9. The saving in human life by the reduction in the County death-rate from **all forms** of tuberculosis is considerable; for example, if the death-rate in 1938 had been the same as in 1914 there would have been 2,237 deaths instead of the actual number of 979—a difference of 1,258.

NEW CASES OF TUBERCULOSIS.

The following Table 1 shows since 1918 the total number of new cases of pulmonary and non-pulmonary tuberculosis reported in each year ; the case-rate for pulmonary tuberculosis is also given :—

Year	Pulmonary tuberculosis				Non-pulmonary tuberculosis		
	Cases notified (<i>i.e.</i> , during life)	Cases reported at time of death only	Total known cases	Case-rate per 1,000 of population	Cases notified (<i>i.e.</i> , during life)	Cases reported at time of death only	Total known cases
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1918	2,534	303	2,837	1·64	885	137	1,022
1919	2,105	221	2,326	1·34	847	104	951
1920	2,084	177	2,261	1·30	968	122	1,090
1921	2,044	135	2,179	1·23	899	96	995
1922	1,863	105	1,968	1·11	956	83	1,039
1923	1,937	85	2,022	1·13	1,188	74	1,262
1924	1,972	64	2,036	1·14	1,120	65	1,185
1925	1,846	67	1,913	1·07	1,027	57	1,084
1926	1,828	58	1,886	1·05	953	32	985
1927	1,794	54	1,848	1·02	1,045	42	1,087
1928	1,660	56	1,716	0·94	956	51	1,007
1929	1,517	62	1,579	0·87	913	61	974
1930	1,527	46	1,573	0·87	982	61	1,043
1931	1,460	61	1,521	0·84	862	51	913
1932	1,477	37	1,514	0·83	825	28	853
1933	1,453	45	1,498	0·82	780	31	811
1934	1,315	35	1,350	0·74	774	46	820
1935	1,305	35	1,340	0·73	672	31	703
1936	1,248	46	1,294	0·70	722	24	746
1937	1,314	40	1,354	0·72	745	30	775
1938	1,227	41	1,268	0·67	805	28	833

The new pulmonary cases reported in 1938 were the lowest yet recorded.

Comparing the new cases of pulmonary tuberculosis notified in 1938 with the pulmonary notifications in 1920, reduction has taken place in the various age-groups as shown in the following Table 2 :—

Age-groups.	Percentage reduction of pulmonary notifications in 1938 on 1920	
	Males.	Females.
	%	%
0- 5 years	76·9	86·3
5-15 years	84·8	84·6
15-25 years	42·5	19·4
25-35 years	42·7	45·0
35-45 years	39·7	48·2
45-55 years	20·0	41·6
55-65 years	5·5	19·4
65 years and over	*	11·7

* As against the foregoing reductions, there was an increase in this age-group of 107 per cent.

With regard to non-pulmonary tuberculosis, there has been a steady increase in the number of new cases reported each year since 1934. An examination of the notifications shows that such increase occurred mainly

in the mesenteric gland and peripheral gland groups. It is generally agreed that tuberculosis affecting the parts named is often caused by tuberculous milk; the need for "safe" milk, especially when provided for children, is obvious.

The new cases referred to in Table 1 are further dealt with in Chapter V.

DEATHS AND DEATH-RATES FROM TUBERCULOSIS.

Table 3 below shows the number of deaths registered and the death-rates recorded during the years 1913 to 1938 in the Administrative County :—

Year	Population	Deaths			Death-rate per 1,000 of population		
		Pulmonary tuberculosis	Non-pulmonary tuberculosis	Tuberculosis (all forms)	Pulmonary tuberculosis	Non-pulmonary tuberculosis	Tuberculosis (all forms)
1913	1,749,659	1,441	527	1,968	0·82	0·30	1·12
1914	1,748,289	1,523	572	2,095	0·87	0·32	1·19
1915	1,666,488	1,614	555	2,169	0·96	0·34	1·30
1916	1,620,062	1,685	471	2,156	1·04	0·29	1·33
1917	1,568,656	1,584	466	2,050	1·00	0·30	1·30
1918	1,537,951	1,652	435	2,087	1·07	0·28	1·35
1919	1,662,716	1,339	358	1,697	0·80	0·22	1·02
1920	1,728,967	1,323	396	1,719	0·76	0·23	0·99
1921	1,758,738	1,301	376	1,677	0·73	0·21	0·95
1922	1,766,027	1,362	389	1,751	0·77	0·22	0·99
1923	1,772,658	1,250	412	1,662	0·70	0·23	0·93
1924	1,782,800	1,215	339	1,554	0·68	0·19	0·87
1925	1,785,500	1,205	361	1,566	0·67	0·20	0·87
1926	1,788,500	1,158	286	1,444	0·64	0·16	0·80
1927	1,800,300	1,105	296	1,401	0·61	0·16	0·77
1928	1,811,000	1,066	287	1,353	0·58	0·15	0·74
1929	1,811,700	1,102	279	1,381	0·60	0·15	0·67
1930	1,806,960	1,046	253	1,299	0·57	0·14	0·71
1931	1,804,400	1,021	266	1,287	0·56	0·14	0·71
1932	1,802,700	975	238	1,213	0·54	0·13	0·67
1933	1,802,730*	1,010	232	1,242	0·55	0·12	0·68
1934	1,807,090*	848	231	1,079	0·46	0·12	0·59
1935	1,821,100	855	189	1,044	0·46	0·10	0·57
1936	1,842,900	856	192	1,048	0·46	0·10	0·56
1937	1,859,200	865	198	1,063	0·46	0·10	0·57
1938	1,880,600	802	177	979	0·42	0·09	0·52

* Consequent on the alteration of boundaries, the death-rates have been calculated on the following adjusted populations :—1932, 1,807,800; 1934, 1,809,597.

Of the 979 deaths from tuberculosis (all forms) in 1938, 187 occurred in institutions or at private addresses outside the Administrative County area and were transferred by the Registrar-General to the County

records ; 106 of the 187 transferable deaths were known to the County tuberculosis officers during life.

In Appendix I are given the tuberculosis deaths and death-rates in the 109 urban and rural districts in the Administrative County, and in the eight dispensary areas.

DEATHS FROM PULMONARY TUBERCULOSIS.

The following Table 4 shows the deaths recorded from pulmonary tuberculosis in 1938 and the preceding 17 years analysed according to sex and age :—

Period	Estimated sex population	Pulmonary deaths in various age-groups								Total	Death-rate per 1,000 of sex population
		0 to 5	5 to 15	15 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and over		
<i>Males.</i>											
1921-25 (average)	841,030	9	15	120	131	151	153	83	26	688	0·81
1926-30 (average)	856,920	4	9	107	111	133	130	79	27	600	0·70
1931-35 (average)	859,880	3	6	78	106	105	120	89	29	536	0·62
1936	875,838	3	5	70	96	112	106	85	35	512	0·58
1937	883,584	2	1	72	98	92	121	87	24	497	0·56
1938	893,755	2	—	58	98	99	111	72	32	472	0·52
<i>Females.</i>											
1921-25 (average)	929,614	8	26	172	145	104	69	37	17	578	0·62
1926-30 (average)	946,771	4	18	155	133	81	49	37	18	495	0·52
1931-35 (average)	949,240	2	13	118	114	72	41	31	15	406	0·42
1936	967,062	1	9	97	95	57	32	26	27	344	0·35
1937	975,616	1	7	103	105	69	42	23	18	368	0·37
1938	986,845	1	9	100	95	53	33	29	10	330	0·33

DEATHS FROM NON-PULMONARY TUBERCULOSIS.

The mortality from non-pulmonary tuberculosis in 1938 is greatest among young children aged 0-5, followed by the age-groups 15-25 and 25-35. The actual numbers of children dying each year from this form of the disease have greatly diminished. This decline is due to segregation and supervision of the adult pulmonary cases, social measures, the safeguarding of the milk supply, and the successful modern methods of treatment of children with non-pulmonary disease.

The classification of the deaths in 1938 from non-pulmonary tuberculosis, according to part affected, is as follows :—Vertebral column, 15 ; other bones and joints, 15 ; intestines and peritoneum, 24 ; central nervous system, 75 ; disseminated, 30 ; genito-urinary, 12 ; adrenals, 1 ; lymphatic system, 2 ; skin and subcutaneous tissue, 3 ; total 177 (adults : males 57, females, 49 ; children : males 34, females 37).

II.—TUBERCULOSIS IN THE ADOLESCENT *

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The seriousness with which this Association* regards adolescent tuberculosis is shown by its discussion of the subject for a third time in seven years. In 1932 the papers were nominally concerned with the young adult and in 1936 with the adolescent and young adult, but on both occasions the speakers dealt principally with the age-period 15-25, for which official statistics are most readily available. This period includes adolescence, no official definition of which exists. It is the time of growth from childhood to maturity, and is roughly from 13 to 20 years of age.

The problem may be approached from the point of view of the administrator, the clinician or the social worker. For the administrator the solution of all problems tends to rest upon a statistical basis. This may be incomplete, and needs constantly to be brought up to date. The clinician depends largely for his conclusions upon impressions derived from his personal experience of individual patients. The different points of view are illustrated in the reports of previous discussions published in the Transactions of this Association. All the speakers were agreed as to the importance of the subject. It is in the method of approach and the conclusions reached that they differ; indeed, no final conclusions were reached on either occasion.

MORTALITY.

The problem of adolescent tuberculosis is not confined to Great Britain. In Norway, a country with a low tuberculosis mortality, Heimbeck¹ found that under ordinary conditions in a medium-sized town, the highest pulmonary female mortality occurred between the ages 14 and 24. Denmark,² a country with the second lowest tuberculosis mortality in Europe, had in 1935 its peak of mortality for female pulmonary tuberculosis at the age-period 20-25. In England and Wales³ the peak of mortality since 1921 has been the age-period 20-25 for females; in males it has shifted towards the ages 45-55.

* Opening paper read at the Annual Conference of the National Association for the Prevention of Tuberculosis, in Belfast, on the 30th June, 1939.

For the age-period 15-20, the rates are appreciably lower for both sexes. Thus, for the years 1931 to 1935 the mortality per million from respiratory tuberculosis in England and Wales for the various age-periods was as follows :—

Ages	15-	20-	25-	35-	45-
Males	506	1001	1000	1175	1417
Females	865	1176	939	662	487

MacNalty⁴ has pointed out that towards the end of childhood and young adult life, tuberculosis, chiefly in the pulmonary form, accounts for one-third in males and for nearly one-half in females of the deaths from all causes. In childhood⁵ all the signs point to a condition of high resistance to pulmonary tuberculosis between the ages of 3 and 10 years, and marked lesions may be present which cause little inconvenience.⁶ Relatively few cases occur in early adolescence.

In 1928 Coutts⁷ drew attention to the serious failure of the young adult to participate fully in the decreasing mortality from pulmonary tuberculosis. Between the years 1901 and 1929 there was no decline at the ages 15-20 and a slight increase in the age-group 15-25. Sutherland,⁸ however, found that in Manchester the diminution of the female death-rate between the ages 15-24 for the period 1921-31 was only one per cent. less than that for all female age-groups combined.

The discussions on this subject in 1932 and 1936 were based upon statistics available up to 1930. These were of such a character as to cause anxiety. Since then, there has been a definite improvement in the position, and in the light of more recent figures, it is clear that in 1936, when the opener of the discussion described the problem of the adolescent and young adult as of the greatest urgency, a decline in the mortality had already begun. One is reminded of discussions on unemployment, and of the prolonged attempts to assess causes and find remedies, only to discover that in the meantime the position has materially changed. Indeed, as I shall now show, there has been since 1933 a continuous fall in the adolescent tuberculosis death-rate. As a clinical tuberculosis officer seeing tuberculous patients at all ages, I have in recent years become impressed with the marked decline in the number of acute, fulminating cases in adolescence (so-called "galloping consumption") a type which was common when I first became interested in tuberculosis some thirty years ago.

The Statistical Review (Text) of the Registrar-General published last year contains valuable information as to the position in England and Wales up to the end of 1935, and I am indebted to this official publication for the following data :—

TABLE 5.—*Phthisis Mortality Rates per 100,000 living at ages 15-20 and 20-25 from 1851 to 1935.*

Year	Males		Females	
	15-20	20-25	15-20	20-25
1851-60	240	405	352	430
1861-70	220	389	312	397
1871-80	168	311	241	315
1881-90	129	234	181	233
1891-1900	99	189	129	159
1901-10	76	152	99	123
1911-20	80	135	114	134
1921	71	136	114	141
1922	67	146	106	143
1923	63	133	130	129
1924	62	133	107	136
1925	64	117	107	134
1921-25	66	133	109	137
1926	59	109	97	131
1927	61	108	103	130
1928	62	105	101	126
1929	63	107	100	134
1930	61	101	98	123
1926-30	61	106	100	129
1931	61	108	98	123
1932	54	105	92	121
1933	50	106	88	120
1934	46	95	81	113
1935	40	87	72	110
1931-35	51	100	86	118

TABLE 6.—*Decline per cent. in the Mortality from Pulmonary Tuberculosis at the age periods 15-20 and 20-25.*

Age-group.	Sex.	1911-20 compared with 1851-60.	1931-35 compared with 1921-25.
15-20	Male	67	23
	Female	68	21
20-25	Male	67	25
	Female	69	14

The rate of decline in mortality amongst young females up to 1920 was as great as or greater than amongst males ; subsequently, the advantage was definitely with the males, in whom the decline from 1931 to 1935 was much greater as compared with 1921-25. The Registrar-General's comment on the foregoing tables is of interest ;—

“ Stationary periods of arrested fall occurred both for male and female rates at ages 15-20 between the years 1926 and 1931, and it may be significant that the persons concerned had been children between the ages of 0 and 12 during the period of food shortage in 1916-18. Similar stationary or rising periods occurred in the rates at ages 20-25 between the years 1930 and 1933, the persons comprising these groups of the population having been children of ages 3 to 12 during the 1916-18 period. It may be . . . that these temporary arrests in the decline of phthisis mortality of young adults were delayed results of the effects of the food shortage of 1916-18 upon children, producing in them a lowered average resistance to active tuberculosis of the lungs”

TABLE 7.—*Mortality from Tuberculosis in 1935, per cent. of that in 1922-24 and 1932-34.*

Age-group.	1935 per cent. of 1922-24.		1935 per cent. of 1932-34.	
	Males.	Females.	Males.	Females.
All } Crude	69	63	90	88
Ages } Standardised	68	64	88	88
0-	46	46	74	75
5-	53	49	85	84
10-	45	44	77	87
15-	64	67	82	84
20-	63	80	85	93
25-	65	72	90	90

TABLE 8.—*Annual Percentage changes necessary to produce results in the above Table 7.*

Age-group	Males			Females		
	1913 to 1923	1923 to 1933	1933 to 1935	1913 to 1923	1923 to 1933	1933 to 1935
All Ages	— 2·5	— 2·6	— 5·1	— 2·1	— 3·2	— 6·2
0-	— 5·5	— 4·8	—14·0	— 5·5	— 4·7	—13·4
5-	— 4·2	— 4·7	— 7·8	— 3·8	— 5·1	— 8·3
10-	— 2·8	— 5·3	—12·2	— 2·6	— 6·7	— 6·7
15-	— 0·9	— 2·5	— 9·5	+ 0·5	— 2·2	— 8·3
20-	+ 0·4	— 3·0	— 7·8	+ 0·9	— 1·5	— 3·6
25-	— 1·6	— 3·2	— 5·1	— 0·9	— 2·2	— 5·1

Thus, in both sexes there was no substantial change between the ages 15-20 from 1913 to 1923. Between 1923 and 1933 there was a decrease of about 2 per cent. while from 1933 to 1935 the decrease amounted to 8 or 9 per cent. in both sexes. For the ages 20-25 there was a definite increase of one-half per cent. for males and one per cent. for females from 1913 to 1923, followed by a fall from 1923 to 1933 of 3 per cent. for males

and 1·5 per cent. for females. Between the years 1933 and 1935 the decrease was approximately 8 per cent. for males and nearly 4 per cent. for females. The rise or arrested fall in mortality between the ages 15 and 25 from 1913 to 1923 is attributed by the Registrar-General to the immediate effects of the food shortage.

In Wales,⁹ the death-rate at 15-25 shows little change since 1921 in contrast with England, and the rate for females is particularly high.

Courcoux¹⁰ has recently published an interesting monograph, based on the study of 625 young patients between the ages of 12 and 19 derived from various sources in Paris. He found that the peak of mortality was between the ages 15 and 17 (girls 16 ; youths 17) providing 25 per cent. of the cases between the ages specified. Amongst the well-to-do, the peak age was rather higher.

The following Table 9 shows the results of an investigation made in my area (population 371,926) and gives the number of deaths from tuberculosis occurring during the five-year period 1934-38 at ages between 13-20 and at all ages. The period 13-20 was chosen as more strictly in accord with the true period of adolescence than the customary official age-groups :—

Year.	Age-group 13-20.				All Ages.						Percentage of pulmonary cases in 13-20 age-group to all pulmonary cases.
	Pulmonary.		Non-pulmonary.		Pulmonary.		Non-pulmonary.		Total.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
1934.....	5	13	—	2	91	78	4	10	95	88	% 10·65
1935.....	2	10	—	3	80	69	6	8	86	77	8·05
1936.....	1	5	1	1	100	58	7	7	107	65	3·79
1937.....	4	8	1	—	92	89	5	7	97	96	6·62
1938.....	3	12	1	1	87	63	8	4	95	67	10·00
Totals	15	48	3	7	450	357	30	36	480	393	7·80

The following conclusions may be drawn : (1) The phthisis deaths during the adolescent period were roughly 8 per cent. of the total pulmonary deaths at all ages; (2) the deaths from all forms of tuberculosis amongst adolescent males was 3·7 per cent. of the total male deaths, while for females the corresponding figure was 14 per cent. In the Administrative County of Lancaster¹¹ in 1937, 28 per cent. of the female pulmonary deaths occurred at the age-period 15-25, the rates for males being only 14 per cent. In London¹² during the years 1911-31 there was an increase in the mortality amongst females in the age-group 15-25 and an increase relatively to all other causes of death. This was greatest

in urban areas, there being practically no change in rural areas. It has been suggested that this was due to the occupations of young females in the latter not being changed to the same extent as in urban areas. The increase in the poorer areas was rather less than in better-class areas, and was almost entirely confined to single young women.

INCIDENCE.

Attempts have been made to estimate the incidence of tuberculosis amongst the adolescent population. Between October 1927 and January 1933, 17,947 applicants for employment in the Metropolitan Life Assurance Company of New York¹³ were examined, 95 per cent. of whom were girls, the majority being 18 years of age; 1.03 per cent. were found to be tuberculous by x-ray examination.

Courcoux¹⁴ reports that over a period of eleven years in a Paris bank, out of 1,130 employees of both sexes aged 15-20 who were examined, 76 cases of pulmonary tuberculosis or 61 per 10,000 person-years were found, compared with 48 per 10,000 person-years for those over 20. He suggests that old statistics, prior to the use of radiology, be ignored.

Wingfield and McPherson¹⁵ found as a result of x-ray examination of 2,381 adolescents from 14 to 21, that between 0.5 and 1 per cent. had evidence of tuberculous pulmonary lesions.

PREDISPOSING FACTORS.

Many possible causes of the high death-rate amongst adolescents have been advanced. The important influence attributed by the Registrar-General to food shortage has already been mentioned. Faber¹⁶ relates a similar position in Denmark to the state of nutrition and lack of resistance in self-supporting young females. Bentley¹⁷ investigated such factors as sleep, work, wages, food, smoking, distance to work, fatigue, clothing, worry, etc., but found no single factor responsible. Almost half of those investigated were employed as clerks, domestic servants, dressmakers and shop-assistants. Walker¹⁸ found that out of 44 patients between the ages of 15-25 who went out to work, 16 of them had a journey of one to one-and-a-half hours daily, and she regarded fatigue as an important factor. Cummins¹⁹ considers it tempting to invoke as an explanation the action of the endocrine system, bound up with the development of sexual maturity. He admits, however, that as endocrines play a part in the life of both sexes, their influence is as hard to differentiate as environment. Bardswell²⁰ attributed the increased incidence to the strain of employment. Coutts²¹ considers that by reducing the amount of tuberculosis, as a result of better diagnosis

and treatment, a smaller proportion have secured protection in childhood. This is supported by the work of Dow and Lloyd,²² who, from an investigation in the Mantoux reaction of 1,003 children, concluded that the incidence of tuberculous infection up to the age of 15 was about 43 per cent., *i.e.*, more than half the population were uninfected at the age of 15. Dunlop,²³ in a paper read before this Association in 1932, said that it was usually possible to trace the finger-prints of previous tuberculous toxemia in the school history of that particular child. I cannot accept this view, and agree with McKinley and Watt²⁴ that it is quite impossible from ordinary medical inspection to predict with any degree of accuracy the type of school-child likely to develop tuberculosis in young adult life. Cox,²⁵ from an analysis of 3,756 young adults who came on the dispensary registers as definite cases of tuberculosis during the years 1927-33 (and who could have been seen as children in or after 1913), found that these were not delicate children who had been referred during childhood to the consultant tuberculosis officers of Lancashire as possible cases of tuberculosis.

Tuberculous infection by itself does not necessarily give rise to tuberculous disease. This is shown by the remarkable freedom from tuberculosis recorded at Papworth and Preston Hall amongst the families of tuberculous settlers. Some predisposing cause is necessary. One must conclude on the present evidence that, apart from actual food shortage, there is probably no single factor responsible, but that any unfavourable circumstance, *e.g.*, fatigue, diet, worry, etc. can break down individual resistance, so that tuberculous infection becomes tuberculous disease.

TREATMENT.

I have already referred to the marked decline in the number of acute, hopeless adolescent cases of phthisis; indeed, the outlook as regards treatment would appear to have become more favourable, provided that this is undertaken reasonably early, carefully chosen and faithfully applied. Institutional treatment, as soon after diagnosis as possible, is essential, because it is usually only by such means that strict rest in bed under open-air conditions can be secured. I regard this as the most important factor in treatment, and in this connection I may mention that I have found the application of sandbags to the chest, while the patient is recumbent, helps him to lie quiet. In suitable cases artificial pneumothorax treatment is of great value in promoting additional rest for the damaged lung, and many striking results have been obtained by its use.

PREVENTIVE MEASURES.

As we cannot prevent infection by our present methods, a period of convalescence for adolescents, in whom tuberculous infection is discovered, has been suggested by Bernard²⁶ and others. The risks of infection can, however, be reduced by early diagnosis, adequate supervision of patients, and the segregation of known infectious cases. Much can also be done by wise, sympathetic and persistent education of young people in the laws of health, although care is necessary lest we frighten away the people we wish to help. As regards the "Keep Fit" campaign, caution must be exercised, since over-enthusiasm for athletics has not infrequently resulted in excessive strain and the lighting up of dormant lesions.

Everything possible should be done to secure the examination of contacts, but this is difficult, especially in the case of adolescents. It is frequently impossible to detect early pulmonary tuberculosis by clinical methods alone, and I have long felt that an x-ray examination should be made, even though it is impossible to say whether or when latent lesions so discovered will give rise to active disease. To render this possible, facilities for x-ray examination should be provided, improved or augmented as circumstances require. At present, young persons must be examined by the factory surgeon on employment in factories or workshops, and one would like to see this examination extended to include those employed in offices, shops, etc., with adequate facilities for x-ray examination. As a negative result is no guarantee against the manifestation of latent tuberculous disease at a later date, periodical re-examination of young adults is desirable. It should be universal and compulsory. Lloyd and McPherson²⁷ found that in 4 out of 5 young adults suffering from pulmonary tuberculosis, in whom a definite source of infection could be traced, the onset occurred either during exposure to infection or within five years of the last known exposure. They recommended that known contacts be kept under supervision for five years. In a previous paper²⁸ I suggested a minimum period of four years' supervision of contacts at all ages, as a result of a study of the secondary contact cases occurring in the immediate families of 1,035 patients suffering from phthisis. In this connection, the medical examination and supervision of young entrants into the armed forces of the Crown may well prove to be important.

SUMMARY AND CONCLUSIONS.

1. There is no official definition of the term "adolescent." It is the period of growth from childhood to maturity, and may be roughly defined as the age-period 13-20,

2. This paper deals mainly, but not exclusively, with this age-period ; official statistics are concerned with 5- or 10-year age-periods.

3. The problem of adolescent tuberculosis is not confined to Great Britain. It exists in countries with the lowest death-rates. In England and Wales the peak of mortality since 1921 has been the age-period 20-25 for females and 45-55 for males. The rates are considerably lower below age 20 in both sexes.

4. The adolescent and young adult population did not participate in the continuous reduction of the tuberculosis death-rate from 1901-29, and on this account the subject was discussed at the meetings of the Association in 1932 and 1936.

5. Since 1933 there has been a continuous fall in the adolescent tuberculosis death-rate. Between 1933-35 there was a decrease of from 8 to 9 per cent. for both sexes between the ages of 14-20.

6. X-ray examinations in this country and abroad point to an incidence of tuberculous lesions in adolescents of 5 to 10 per thousand.

7. The Registrar-General attributes the temporary arrest in the decline of phthisis mortality at the age-period 15-20 between 1921 and 1931, and at the age-period 20-25 between 1930-33 to the effects of the food shortage during 1916-18. Many other factors, *e.g.*, sleep, work, wages, smoking, fatigue, etc. have been investigated, but no constant predisposing cause has been found.

8. The tuberculous adolescent is not the delicate child.

9. Any unfavourable circumstance may break down individual resistance, so that tuberculous infection becomes tuberculous disease.

10. The outlook for tuberculous adolescents has improved in recent years. Strict bed-rest under open-air conditions is essential, and artificial pneumothorax treatment is of great value in suitable cases.

11. Early diagnosis, close supervision of patients, and the segregation of known infectious cases are urged, together with the judicious education of the public and of young people in particular.

12. Contact examination is important, and facilities for x-ray examination are essential.

13. The routine examination by the factory surgeon of young persons on employment in factories or workshops should be extended to include those in offices and shops, etc., and adequate facilities for x-ray examination should be available.

14. Examination and re-examination of adolescents should be universal and compulsory. After exposure to a known source of infection a minimum period of five years' observation is desirable.

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III.—RECENT METHODS IN THE TREATMENT OF PULMONARY TUBERCULOSIS.*

By G. LEGGAT, M.B., Ch.B., D.P.H.

*Medical Superintendent of High Carley Sanatorium and Consultant
Tuberculosis Officer for Furness Dispensary Area.*

Although my address* deals with the modern treatment of pulmonary tuberculosis as practised in a sanatorium, I should like to state that in any efficient tuberculosis scheme two organisations are necessary : (1) The dispensary unit ; (2) the institution.

The one is the complement of the other, and no matter how efficiently the treatment may be conducted in the sanatorium, unless the patient on discharge returns to a district where there is a well-organised dispensary unit, the benefit the patient may have derived from his period in the institution will, to a great extent, be wasted.

So as to continue the treatment commenced at the sanatorium, it is essential for the dispensary to have facilities for the giving of artificial pneumothorax refills under x-ray control by both screening and skiagraphy.

To Otto Walther, who started his first sanatorium in the Black Forest in 1888, we are indebted for the principles of sanatorium treatment. Nearly all British sanatoria base their treatment on Walther's practice, and although there may be differences in detail the general principles are the same, namely fresh air, good nourishing food, and rest combined with graduated exercises ; of these rest is the most important. The human body when given rest has wonderful powers of recuperation, and much can be achieved by the judicious application of rest. Many methods of treatment and so-called cures of pulmonary tuberculosis have been advocated, but, apart from sanatorium treatment, very few have stood the test of time.

As I have stated previously, the most important factor in sanatorium treatment is rest which varies in degree from absolute, where the patient is not allowed to do anything for himself, to bed rest, where he is allowed to get up to go to the lavatory, etc. In my own sanatorium patients are kept in bed for at least one month after admission, the degree and period of rest depending on the presence or absence of toxic symptoms. Our guide for toxicity is the pulse and temperature, and

* An address given to the North-Western Branch of the Society of Medical Officers of Health at Manchester on 14th April, 1939.

of these I think that the pulse rate is the more important provided there are no mechanical reasons for its increase. Tachycardia will often persist for some time after the temperature has returned to normal. During the four weeks' rest the patient is examined clinically, skiagrams are taken of the chest, bacteriological examinations made of the sputum, and the blood sedimentation rate is noted. When these are completed the case is then reviewed in regard to future treatment, whether rest has to be continued or modified, and whether the condition might be improved by surgical intervention.

With sanatorium treatment alone much can be achieved, but arrest of the disease is obtained only in the few, whilst many are still found to relapse and succumb to the disease.

I think that in the sanatoria of this country the dawn of the modern treatment of pulmonary tuberculosis came with the more extensive use of x-rays, which was made possible by the improvement in the x-ray plants, the ease with which these could be manipulated, and the great improvement in the resultant skiagrams. Previous to this we medical superintendents believed that we were expert in interpreting the physical signs in the lungs, but x-rays gave to most of us a rude awakening; they showed that the lesions we found by our physical examination were much more extensive than we had imagined; and they showed other lesions and very often cavity formation which were quite unsuspected. I do not wish to minimise the value of the personal observations of the physician and the use of the stethoscope. I believe that both are a valuable and necessary part in diagnosis and in considering the most appropriate line of treatment. Further, x-rays clearly demonstrated to most of us that something more ought to be done if we were to help our patients on the road to recovery, and it was but a short step from the introduction of the x-ray plant to surgical intervention, in the induction of artificial pneumothorax.

The medical superintendent had now to adapt his mind to surgical intervention. To some this may have come easier than to others, and certain local authorities, perhaps, were more progressive, so that we have the paradoxical position maintained to-day whereby some sanatoria have but recently commenced artificial pneumothorax treatment whilst others are fully equipped with adequate buildings and specialised staff to deal with all major operations in connection with thoracic surgery.

I regret to say that there are still areas where no provision is made for the continuation of artificial pneumothorax refills. In a neighbouring sanatorium to mine to which patients are admitted from various authorities, the medical superintendent is unable to give a large number

of his patients the benefit of artificial pneumothorax treatment because certain of these authorities have made no provision for continuing the refills when the patients are discharged.

I propose to include in my address artificial pneumothorax, as it is a comparatively simple operation which can be carried out easily by the physician. The actual induction requires care and knowledge, and subsequently where the lung is well away from the chest wall any doctor can safely put in a needle and give a refill; but the skill consists in knowing how much to give, when to give it, how to vary the intervals between the refills as the disease changes, how to deal with complications, how to combine collapse with other methods of treatment, and where the artificial pneumothorax is not producing the desired result to have the courage to abandon it, or, where there are no contra-indications, to substitute some form of plasty operation.

The effect of a pneumothorax is to rest the diseased area of the lung, relieve tension, and close cavities. Pulmonary tuberculosis being but the local manifestation in the lungs of a generalised disease, pneumothorax in itself does not cure the disease but it very definitely assists by giving local rest to the affected part. Though an efficient collapse of the lung may cause a dramatic clearing up of the symptoms and bring a feeling of undue optimism to the patient, the disease is still actively present in the collapsed area of the lung, so that treatment on sanatorium lines is still an essential part of the treatment and must be persevered with. With a collapse that is effective excellent results are produced by artificial pneumothorax, but unfortunately in a certain proportion of cases this desired result is not obtained owing to the presence of adhesions. These adhesions almost invariably occur over the site of the lesion, prevent collapse of the desired area of lung, and also may be the means of keeping open a cavity. It is in these cases that we have to call in the aid of the thoracic surgeon, who may be able to divide the adhesions and so convert a non-effective into an effective collapse, and in many cases give us complete control of the cavities. Where the surgeon is unable to divide the adhesions he may further help the pneumothorax and release tension and drag by supplementing with a phrenic nerve interruption, or, when a cavity is still uncontrolled and there are no contra-indications, by substituting for the pneumothorax some plasty operation. The most frequent complication of artificial pneumothorax is the presence of fluid, which I find occurs in about 50 per cent. of my cases. Fortunately, in most it is benign and if left alone is either absorbed or causes no disturbance. There is a very small proportion where this happy result does not take place: a pyo-pneumothorax occurs, which, in spite of

efficient treatment by washing out the pleural cavity, may be the cause of external or internal fistulae. Again the surgeon comes to our aid, this time not only to control the diseased area by some plasty operation but actually to save the life of the patient.

For the last seven years we have been capable of dealing with all major operations in connection with pulmonary tuberculosis. And to give you some impression of the surgical work carried out in that time, the following number of operations have been performed at High Carley :

Artificial pneumothorax inductions	343
Artificial pneumothorax refills	11,094
Phrenic nerve interruptions	215
Thoracoscopy and division of adhesions	70
Thoracoplasty	98
Extra pleural pneumothorax	5
Bronchoscopy	4

Bacillary loss on discharge of patients with positive sputum on admission.—You, as medical officers of health, are no doubt mainly concerned with whether we medical superintendents of sanatoria are sending cases back to your areas free from infection. With sanatorium treatment combined with surgical intervention, I do not think there is any doubt that we are “delivering the goods” better than we were ten years ago. In my own sanatorium a careful record has been kept of the bacillary loss on discharge of cases having a positive sputum on admission.

During the 14 years from 1925 to 1938, the bacillary loss has risen from 12·2 to 50·6 per cent.

In the five-year period 1925 to 1929, there were 1,352 patients admitted, of whom 22 had artificial pneumothorax, and the bacillary loss was 19·5 per cent.

In the five-year period 1934 to 1938, there were 914 patients admitted of whom

243 had artificial pneumothorax,
184 phrenic nerve interruption,
70 thoracoscopy with division of adhesions,
33 thoracoplasty,
5 extra pleural pneumothorax,

and the bacillary loss was 51·0 per cent.

I think this speaks for itself as showing the great improvement that has been brought about in the results of sanatorium treatment by surgical intervention. Though this most encouraging improvement in our results has occurred in the last ten years, I feel that we can expect very little further improvement unless some means can be found to admit more patients in the early stages of the disease.

Results of thoracoplasty.—Up to the end of 1938, 19 cases of complete thoracoplasty had been discharged; all of these patients except two had a positive sputum before operation, the amounts varying from 2 to 20 drachms. The sputum on discharge in all these cases except one was negative or absent. Of these patients, 17 were still found to be free from infectious sputum up to December, 1938; in other words, all these patients except two, previously highly infectious, had been rendered free from infection. In addition to this 47·3 per cent. are fit for work and 36·8 per cent. are actually at work.

IV.—THE BOARDING-OUT OF YOUNG CHILDREN*

By ANNIE TWEEDY and ISABELLA MACDONALD

County Tuberculosis Health Visitors.

The object of boarding-out is to remove young children from infectious surroundings. Hence, only children from the homes of positive-sputum patients would be eligible and, even concerning these, various points would need consideration so widely different are home circumstances.

For instance, should *all* young children of such cases be boarded-out, or what should be the deciding factor? Should it be because of:

Infectivity of the patient?

Lack of intelligence of parents?

Lack of co-operation in preventive measures?

Poor financial circumstances, need for domestic help in the home?

Overcrowding if patient is to be isolated?

Lack of cleanliness?

And is the removal of children from the home the best solution of the difficulty?

When and for how long should contacts be boarded-out? Should they go away until the patient has been admitted to an institution and the home disinfected and "spring-cleaned?" If the patient refuses institutional treatment, or returns home with a positive sputum, should children be boarded-out for the duration of his illness? When a patient is discharged from a sanatorium with a negative or no sputum, should children be returned irrespective of other conditions in the home?

Young people nearing marriageable age are generally afraid of friends and neighbours learning that there is a case of tuberculosis in the home. Would boarding-out attract attention to the fact and make it more difficult for them, or for the patient himself on his return from sanatorium, or for any of his household, to find work?

Are our contacts really the victims of an early infection or do they contract the disease later from friends or fellow-workers?

* This chapter embodies papers read by Miss Tweedy and Miss Macdonald at a conference of health visitors working under the Lancashire tuberculosis scheme held on the 28th January, 1939.

At first glance, boarding-out appears to be an effective way of saving some children from infection but, when examined, does it really work out so well? Many of our cases are already "plus 2" when we get them. Therefore infection has done its work in greater or less degree. Boarding-out would prevent further infection—for a time—but would the County Council be prepared to keep children over a period of several years, and, even then, would not the children have returned to their homes before the early infection had shown itself—our contacts are mainly young adults, not children. Further, what would be the reaction of parents to boarding-out if their children later developed tuberculosis? Would it not be the boarding-out, not the early infection, that would be blamed, especially if an older child who had stayed at home remained immune?

Moreover, might not any moral delinquency into which any boarded-out child might lapse then or later, be attributed to boarding-out, not to lack of parental control? That would lead to criticism of the system, not merely in the home concerned, but in the whole neighbourhood.

Also, what would be the psychological effect on the children themselves returning from the carefree foster-home, to the impoverished circumstances, the frayed and fretted tempers, and the infection-preventing restrictions of their own homes? Remember, they would go away children, and return as thinking, judging, possibly condemning, adolescents, not too willing to accept the authority of parents who had not, for some considerable time, acted the part of parents to them.

The opinions of parents themselves on the matter vary. All agree that isolation of the patient is the better solution, although some admit that in particular cases boarding-out would be beneficial. The psychological effect of this on the patient, however, was frequently stressed—sometimes fiercely and bitterly—as in the case of a father who said: "It *might* help some children, but it would certainly help to kill the patient. A man's illness already cuts him off from his work and his friends; if it makes him unfit to have his own children in his own home, the sooner it ends him or he it, the better."

From the dispensary point of view, would not boarding-out take from the patient one of the strongest incentives to exercise infection-preventing measures? There are patients too self-absorbed, or too bitter, even to care for children but, after self-preservation, this is the strongest incentive to care.

Again, boarding-out would not materially benefit the home financially. True, there would be fewer mouths to feed, but the more expensive element of the family, the young adults, would remain, and,

as Unemployment Benefit or Public Assistance would be the means of subsistence in most of the homes concerned, the weekly income would be diminished according to the number of children withdrawn, while the standing charges of rent, fire, light, and insurance remained.

It would seem, therefore, more rewarding to improve the home. Boarding-out costs from 14s. 0d. to 17s. 6d. per week per child, with, frequently, extras thrown in. Think what this sum added to the family income would mean. Not only would it do much to counteract that fatal delay in seeking medical advice (so few will risk their income being reduced to National Health Insurance if they can in any way draw a wage, or get Unemployment Benefit), but it would give the patient the strongest incentive possible to co-operate with the tuberculosis staff, and might even bring in the greater part of our most intractable contacts, young adults. *They* do not appreciate the advantages of a clinical or x-ray examination—are, indeed, always prepared to show its disadvantages—but they would appreciate a better family income, and a less-demanding drain on their own wages.

Our aim is the prevention of contact cases. Can that be achieved more effectively by withdrawing *young* children from the home and boarding them out in foster-homes, or by improving the home itself to safeguard the whole family? The Lancashire County Council does not lag in providing the most up-to-date institutional treatment, admittedly the most expensive item in tuberculosis work. We believe it would benefit, even financially, by spending more on preventive work in the home rather than in the foster-home.

This preventive work should include better environment, better nourishment, less worry—all family income matters—and, possibly the most difficult and most necessary of all, suitable work for the recovered patient. Recently, all tuberculosis authorities have realised the benefit of other public services joining in the demand for the former items. For instance:

(a) Under the Housing Act of 1935, all local authorities are now providing houses of proper size with modern conveniences.

(b) All new schools have a maximum of light, air space, lessons in the open, and playing fields, while youth hostels and school camps (now being augmented by the Government drive for safe retreats for A.R.P. purposes and, almost certainly, to be used for peace-time holiday camps) provide increasing facilities for healthful recreation for those who can afford it.

(c) The school ration of milk helps the nourishment of school children, as does that of the welfare centres, younger children. The working adolescent is dependent on his home resources, and always and inevitably

the home resources diminish when tuberculosis enters the home. Boarding-out, as has been shown, would not materially mend this.

The absence of child contacts—or, indeed, contacts of any age—at the Papworth Village Settlement, Cambridge, and the British Legion Village, Preston Hall, Aylesford, Kent, is frequently cited as illustrative of what good environment can do, but the vital factor there is often forgotten, *viz.*, that financial worry is cut out from the family's daily fare by the patient's income remaining the same whatever his earning capacity.

Statistics in "The Fate of Young Children in Tuberculous Households"* showed that young children are particularly liable to non-pulmonary tuberculosis when the mother is the infecting source. But, for the mother's own sake she should be enabled to get proper sanatorium treatment. Quite frequently, a friend or relative will take an infant, but not very many will accept the responsibility of a growing family and many mothers do not like their children to be separated. Occasionally, a children's home will accept such a family, the father paying according to his means; but this is a solution difficult to negotiate, and difficult to maintain for the necessary time.

New Zealand has solved the problem by providing, within easy distance of the sanatorium, a "preventorium," where the children have the best time possible, are under medical observation and see their mothers once a month. This enables the mother immediately to accept treatment and to settle down to it comfortably.

Nearer home, Aberdeen admits such children to her ordinary holiday home—a solution popular with the children and according to the tuberculosis officer of great value to the tuberculosis work and likely to become more so with increased accommodation. Many of us have longed for the provision of such a holiday home in the County. It could always be used to capacity, for parents who would not dream of allowing their children to be boarded-out would gladly accept a holiday for them. Their immediate removal from homes where there was acute illness and massive infection would greatly benefit children and parents alike; delicate children could be sent there to recuperate; and the resistance to disease of all children in tuberculosis homes could be raised by repeated holidays there.

Incidentally, by combining lectures with practical work such a home might become a preparatory school for probable nurses for County institutions.

* Report of the "Lancashire Group" of Tuberculosis Officers to the Research Committee of the Joint Tuberculosis Council, 1929.

SUMMARY.

That boarding-out would be a means of improving the condition of some children is certain ; that it would accomplish the end for which it is under consideration—the prevention of contacts—is doubtful. Unfortunately, we have no data to go upon. The London County Council have found it useful for over 13 years, but we cannot find in their reports that they claim for it any evidence of reducing the number of contacts. The Surrey County Council have tried it since 1936, but it is understood all that can be affirmed yet is that it is workable, and that it has enabled some mothers to accept sanatorium treatment who would not otherwise have done so.

The chief drawback to boarding-out, in our opinion, is that it leaves the most vulnerable people in the home and makes no contribution towards bettering the home. Real hope of success in preventive work centres in the home itself ; in patients and friends instructed in the best means of winning restoration to health and preventing further illness ; in assistance to meet the added strain physically, financially, and psychologically ; in the home, in fact, becoming a willing and intelligent unit of co-operation with the tuberculosis staff in every remedial and preventive effort.

V.—NOTIFICATION AND NON-NOTIFICATION OF TUBERCULOSIS CASES.

Statutory notifications are made under the Public Health (Tuberculosis) Regulations, 1930, which came into force on 1st January, 1931. These regulations consolidate the regulations issued in 1912, 1921 and 1924, and they also include several minor amendments of an administrative nature.

It is the statutory duty of every medical practitioner to notify within 48 hours to the local medical officer of health any case of tuberculosis occurring in his practice, and the medical officer of health is charged with the duty of keeping a corrected register of such cases reported in his district.

Early in 1937 the records of notifications and returns from local medical officers of health were transferred from the Public Health Department to the Tuberculosis Department, where all the administrative work in connection with the notification of tuberculosis cases is now done.

According to the quarterly returns of the local medical officers of health, there were on the registers of the 109 County districts on the 1st January, 1937, 11,602 cases of tuberculosis compared with 7,402 on the dispensary registers—a difference of 4,200. Since February, 1937, as opportunity has permitted, these registers have been compared with the records of the Tuberculosis Department and the necessary corrections made to bring them up-to-date. As registers are amended, steps are taken to ensure that the local medical officers of health submit correct quarterly statements. The result of these investigations has been to reduce the gross disparity of 4,200 mentioned above to 483 on the 31st December, 1938. Part of the difference of 483 is made up by tuberculous patients—about 150—in mental hospitals and other public institutions whose names do not appear on the dispensary registers as they are not normal cases to come under the County scheme.

The following Table 10 shows the number of notifications received in the Administrative County during 1938 :—

	Children.		Adults.		Total.
	Males	Females.	Males.	Females.	
Pulmonary tuberculosis	24	22	676	505	1,227
Non-pulmonary tuberculosis	215	217	166	207	805
Tuberculosis (all forms)	239	239	842	712	2,032

Tables B and C (Appendix II) analyse the notifications received during 1938 according to sex, age, and part affected.

Table D (Appendix II) gives the number of pulmonary and non-pulmonary notifications received during the years 1918 to 1938 in age-groups and sex.

TOTAL " KNOWN SOURCES OF POSSIBLE INFECTION."

One effect of the better notification of cases by practitioners has been to add to the number of new cases in recent years and statistically to make the figures disadvantageously comparable with the earlier years when a larger number of cases escaped notification.

It is, however, possible to obtain a truer record of the number of new cases of pulmonary tuberculosis occurring year by year by adding together (a) the notifications and (b) the deaths which occurred without notification being made during life ; this total gives clearly the number of known sources of possible infection as Table 1 on page 2 shows.

NON-NOTIFICATION.

Pulmonary tuberculosis.

For measures dealing with tuberculosis to be successful, it will be generally agreed that an accurate and complete knowledge of all the existing cases is required. If cases only become known through the death certificate, control of the spread of infection cannot be effective.

I have continued to direct special attention to the notification of cases of tuberculosis, and have engaged in correspondence with medical practitioners, medical officers of health, and medical superintendents over many individual cases.

The extent of non-notification of pulmonary cases in the Administrative County from 1918 onwards is shown in the following Table 11 :—

Period.	Number of deaths from pulmonary tuberculosis recorded.	Deaths not notified under the Regulations during life.	
		Number.	Percentage to pulmonary deaths.
1918-20 (average)	1,438	233	16·2
1921-23 (average)	1,304	108	8·2
1924-26 (average)	1,192	63	5·2
1927-29 (average)	1,091	57	5·2
1930-32 (average)	1,014	48	4·7
1933-35 (average)	904	38	4·2
1936.....	856	46	5·3
1937.....	865	40	4·6
1938.....	802	41*	5·1*

*Of the 41 deaths in 1938 which escaped statutory notification as tuberculous cases during life, it should be stated that 4 were known to the tuberculosis officer and 11 died in public institutions. If these 15 deaths which were known otherwise than by the official primary notification under the Regulations be deducted, then the percentage of 5·1 *non-notified fatal cases would be reduced to 3·2, which figure may be taken as the real extent of missed notifications resulting in cases escaping supervision by the health authorities.* The results of a special enquiry into the non-notified fatal cases in 1938 are given on page 29.

The improvement which has been secured during the past 20 years in the notification of cases of pulmonary tuberculosis before death would not have been practicable without the cordial co-operation of the local medical officers of health and, of course, the general practitioners who make the notifications.

There is no doubt that in this Administrative County a much smaller proportion of cases of pulmonary tuberculosis escapes notification than is frequently the experience in other parts of the country. Thus, we have a smaller proportion of unknown cases or unknown sources of infection remaining outside the measures for the control of tuberculosis.

Non-pulmonary tuberculosis.

In the following Table 12 is given the number of non-notified fatal cases of non-pulmonary tuberculosis in the Administrative County since the year 1918 :—

Period.	Number of deaths from non-pulmonary tuberculosis recorded.	Deaths not notified under the Regulations during life.	
		Number.	Percentage to non-pulmonary deaths.
1918-20 (average)	396	121	30·5
1921-23 (average)	392	84	21·4
1924-26 (average)	328	51	15·5
1927-29 (average)	287	51	17·7
1930-32 (average)	252	46	18·2
1933-35 (average)	217	36	16·5
1936	192	24	12·5
1937	198	30	15·1
1938.....	177	28	15·8

In 1938, 17 of the non-notified deaths from non-pulmonary tuberculosis occurred in public institutions. Meningitis accounted for 10 of the 28 deaths. This acute illness often lasts but few days—and may be only verified as to cause at a post-mortem—so that very little time remains for statutory notification.

SPECIAL ENQUIRY INTO NON-NOTIFIED FATAL CASES.

Commencing in October, 1920, special investigations have been carried out in regard to every individual death recorded in the Administrative County which had not been previously notified. The procedure followed has been to examine the names of persons dying from tuberculosis given in the weekly returns of deaths sent, by arrangement, to the Tuberculosis Department by the district registrars. The names are compared with the notification register, and the death of every person not previously reported as a case under the Public Health (Tuberculosis) Regulations is enquired into ; information as to the circumstances attending non-notification is obtained from the tuberculosis officer and, if necessary, the medical attendant.

In 1938, there were 69 such deaths, and the enquiry for that year gave the following important results :—

(1) That 28 (11 pulmonary, 17 non-pulmonary) of the 69 deaths in 1938 occurred in public institutions.

(2) That of the remaining 41 deaths, the circumstances of non-notification were as stated in the following Table 13 :—

	Period 1st January to 31st December, 1938.		
	Pul- monary.	Non- pul- monary.	Total.
Doctor in attendance shortly before death—			
1 week or less	3	—	3
Complicated cases, presenting difficulty in diagnosis	3	3	6
Misinterpretation of Tuberculosis Regulations and notifi- cation believed to be unnecessary—			
Cases previously notified in another area	5	2	7
Cases known to tuberculosis officers—considerable doubt as to diagnosis in some of these cases	4	—	4
No doctor in attendance	9	1	10
Attended by more than one doctor, and notification believed to have been made by first practitioner	—	2	2
Notified few days after death	2	1	3
Tuberculosis not primary cause of death	1	2	3
Information not obtainable	1	—	1
No apparent reason for non-notification	2	—	2
TOTAL	30	11	41

3. *This table shows that in only 2 of the 41 deaths was there no reasonable excuse for non-notification.*

The efficiency of notification in England varies directly with the efficiency of the county council or county borough scheme dealing with tuberculosis. If there is no really comprehensive scheme, if there are poor and newly qualified, part-time, and badly paid tuberculosis officers, if there are insufficient means for expert diagnosis, and too few beds for treatment, then a high proportion of non-notified fatal cases will be the rule and not the exception.

VI.—APPLICATIONS FOR TREATMENT.

All statutorily notified cases do not come under the tuberculosis scheme. For instance, tuberculous patients in mental hospitals are treated in such hospitals, and are not on the dispensary registers. The tuberculosis officer assists occasionally in diagnosis at mental hospitals ; it may be that even more co-operation between the two services would be beneficial. Again, a small proportion of cases are in very good financial circumstances and prefer to arrange and pay for their own treatment. Another small proportion consists of persons who have delayed consulting their doctors until they are in the last stage of the disease and for whom treatment under the scheme for the few days before death is of no use.

During 1938, there were 2,032 cases notified under the Public Health (Tuberculosis) Regulations as suffering from tuberculosis (all forms), whereas the number of persons who applied for treatment to the County Council was 1,861, equal to 91 per cent. of the notifications.

Application is in the simplest form, consisting of a declaration as to residential qualification, particulars of membership in approved society (if any) under the National Health Insurance, name, age and address. Treatment under the scheme is not compulsory on a patient, and is provided without charge.

Table 14 below shows the number of "new" patients (1,861) who applied for treatment under the County scheme during the year 1938 :—

	Number of applications received during 1938.	Diagnosis of new applicants for treatment.			
		Pulmonary tuberculosis.	Pulmonary and non-pulmonary tuberculosis.	Non-pulmonary tuberculosis.	Diagnosis not confirmed (non-tuberculous).
Men	768	602	19	142	5
Women	646	450	5	183	8
Boys	221	14	1	205	1
Girls	226	18	4	201	3
Total	1,861	1,084	29	731	17

Applications received in previous years were :—1918-22 average, 2,255 ; 1923-27 average, 2,258 ; 1928-32 average, 1,989 ; 1933-37 average, 1,822 ; compared with 1938, 1,861. There were 15 fewer applications in 1938 than in the previous year.

CLASSIFICATION OF NEW PATIENTS.

(a) Pulmonary tuberculosis.

During 1938, applications for treatment were received from 1,113 new patients suffering from pulmonary tuberculosis, and these were reported by the tuberculosis officers to be in the undermentioned stages of the disease on the first examination :—

T.B. minus (sputum negative or absent)	365 or 32·8 per cent.
T.B. plus 1 (early cases, sputum positive)	97 or 8·7 per cent.
T.B. plus 2 (intermediate cases, sputum positive)	484 or 43·5 per cent.
T.B. plus 3 (advanced cases, sputum positive)	167 or 15·0 per cent.

It is well known that, throughout the country, tuberculosis officers do not see many of the new cases in the early stage of the disease. Some patients through ignorance, others on account of economic reasons, neglect to consult a doctor when in the early stage, and so lessen their chance of recovery. In the Administrative County we have for several years made special investigations into the reasons underlying such disastrous delay on the part of patients. These investigations have been continued in 1938, yielding the following conclusions which correspond closely with those published in previous reports :—

1.—Altogether 77·2 per cent. of the 167 advanced cases either had no doctor or had only been attending their doctor for less than two months when first examined by the tuberculosis officer or notified. The corresponding percentage in 1937 was 74·6.

2.—After making allowance for a percentage of fulminating cases (“galloping consumption”) a large proportion—three-fourths—of patients had felt ill for one or more months before consulting a doctor.

3.—The reason for late notification and patients delaying their application until in an advanced stage of the disease is chiefly the disinclination or unwillingness of the patients to report themselves to their doctor when feeling ill. This is due mainly to the insidious onset of the disease, the discomfort being only slight at first.

4.—The time-lag on the part of the family doctors in referring cases to the tuberculosis officer has happily been reduced in recent years. There is still room for considerable improvement.

5.—The initiative to seek medical advice when ill rests with the patient himself. Education of the public, especially children, in hygiene is one and perhaps the most practicable method whereby prompt treatment will be applied.

In previous reports I have mentioned the teaching of hygiene to the older children at school, a matter which has been brought to the notice of the Director of Education for the County.

The tuberculosis medical staff have to depend very largely on the general practitioners throughout the County for bringing forward tuberculous patients, and it is satisfactory to note that 92 per cent. of new cases (excluding contacts) are sent *before statutory notification* to the tuberculosis officers for an opinion as to diagnosis. Too much importance

is still laid by some doctors on sputum examinations alone, and occasionally too long a time is allowed to elapse in order that the sputum may be tested ; or steps are not taken to report the case until it is returned as “ positive.”

(b) *Non-pulmonary tuberculosis.*

During 1938, 731 applicants for treatment were diagnosed by the tuberculosis officers as suffering from non-pulmonary tuberculosis.

The following Table 15 shows the classification of these patients and of the applicants in the preceding four years :—

	1934	1935	1936	1937	1938
Bones, joints and spine	157	139	146	149	151
Abdomen	90	61	67	76	84
Other organs	47	42	54	54	64
Peripheral glands	320	316	340	375	413
Skin	37	34	36	29	19
Total	651	592	643	683	731

VII.—THE DISPENSARY ORGANISATION.

A tuberculosis dispensary should be the centre of activity, for a town or district, in regard to measures for the prevention of the disease, the expert examination and diagnosis of cases, together with the supervision, special treatment, and care of all known tuberculous persons.

For dispensary purposes, the Administrative County is divided into five large areas, average population 328,000, and three small areas (see folding Table A, page 46).

Each large area is in the charge of a consultant tuberculosis officer, and to help the consultant there are two assistant tuberculosis officers, four to seven tuberculosis health visitors, and a clerical staff of two. In each area there is a chief dispensary, and two or more branch dispensaries; at the chief dispensary is co-ordinated the whole of the work required in that particular area. The County Council have provided in each of these large areas a sanatorium-hospital containing up to 57 beds for the treatment and isolation of patients near their homes. The consultant tuberculosis officer of the particular dispensary area acts as the visiting medical superintendent.

The three small dispensary areas—Furness, Fylde and Wigan County—are in the charge respectively of the medical superintendent of the High Carley Sanatorium (130 beds for pulmonary tuberculosis), the Elswick Sanatorium (70 beds for pulmonary tuberculosis), and the Wrightington Hospital (226 beds for non-pulmonary tuberculosis and combined cases). These small areas are each equipped with one dispensary, and have one, or two, tuberculosis health visitors; the clerical work is done in the office of the institution.

Thus, the dispensary side of the work is not divorced from the institutional side, or *vice versa*.

The chart overleaf illustrates the organisation and work of one of the five large dispensary areas in the Administrative County.

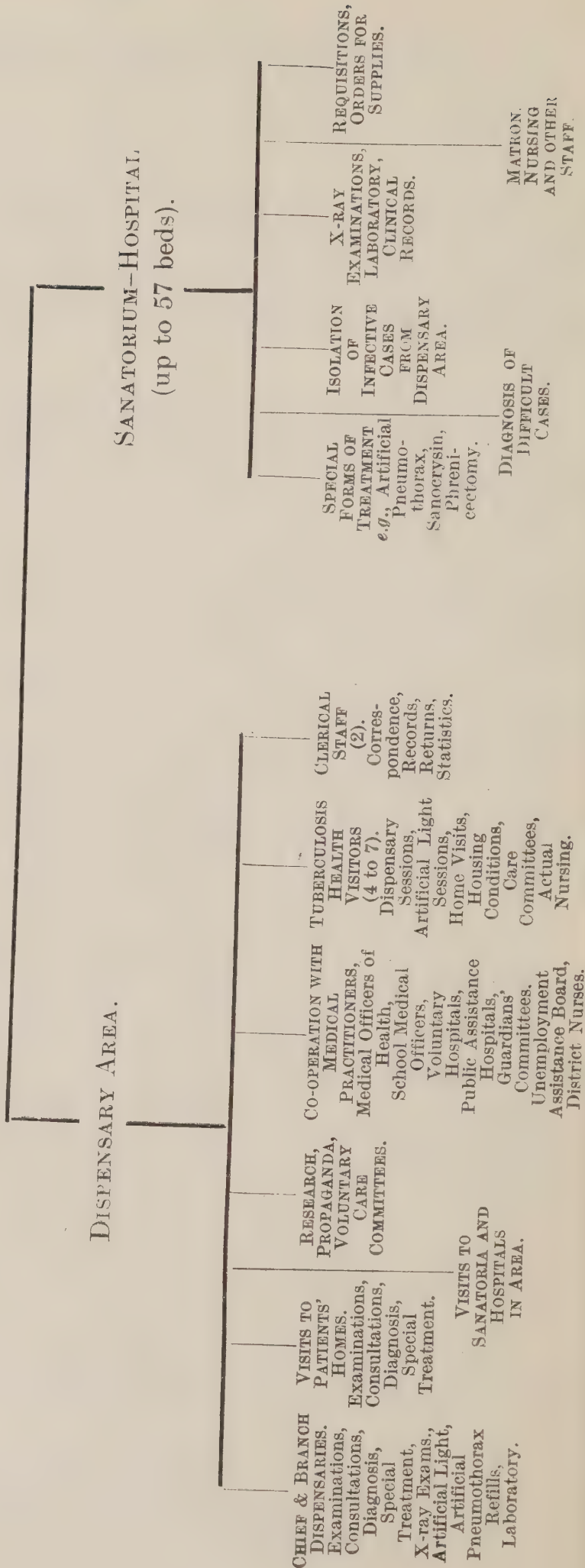
The duties of a consultant tuberculosis officer will, therefore, include in any week the holding of dispensary sessions for diagnosis and advice as to treatment; visitation, in consultation with the medical

ADMINISTRATIVE COUNTY OF LANCASTER.

Chart illustrating the organisation and work of one of the five large dispensary areas in the County. The scheme generally is under the control of the Central Tuberculosis Officer acting for the County Tuberculosis Committee.

CONSULTANT TUBERCULOSIS OFFICER
in charge of a large dispensary area (average population 328,000).

TWO ASSISTANT TUBERCULOSIS OFFICERS.



attendant, of patients in their homes for diagnosis and advice as to treatment ; examination of patients undergoing artificial light treatment at the dispensary centre ; holding of sessions at the dispensary for x-ray examinations ; continuation of artificial pneumothorax treatment ; visitation of the sanatorium-hospital on four or five days per week for routine and special treatment, and administration ; attendance at meetings of voluntary care committees ; arrangement of work with the two assistant tuberculosis officers, the tuberculosis health visitors and the clerical staff.

The work done through the dispensary organisation during the year 1938 is dealt with further in Chapter VIII.

VIII.—SUMMARY OF WORK DONE THROUGH THE DISPENSARY ORGANISATION.

CASES UNDER SUPERVISION.

On the 31st December, 1938, there were on the dispensary registers the following numbers of cases :—

	Males.	Females.	Total.
Pulmonary tuberculosis :			
Under 15 years of age	77	62	139
15 years and over	2,297	1,895	4,192
Non-pulmonary tuberculosis :			
Under 15 years of age	737	593	1,330
15 years and over	801	1,031	1,832
TOTAL PATIENTS ON DISPENSARY REGISTERS	<u>3,912</u>	<u>3,581</u>	<u>7,493</u>
Doubtful cases (diagnosis not determined)			49

On the estimated population of the Administrative County, namely, 1,880,600, the 7,493 cases represent an incidence of 3·98 per 1,000.

The medical classification* of the 7,493 patients was as under :—

	Disease active.	Disease quiescent.	Total.
Pulmonary tuberculosis :			
T.B. minus	529	911	1,440
T.B. plus 1	343	294	637
T.B. plus 2	1,460	534	1,994
T.B. plus 3	212	48	260
Total	<u>2,544</u>	<u>1,787</u>	<u>4,331</u>
Non-pulmonary tuberculosis :			
Bones and joints	284	305	589
Spine	141	142	283
Abdomen	88	199	287
Other organs	87	74	161
Peripheral glands	444	1,091	1,535
Skin	214	93	307
Total	<u>1,258</u>	<u>1,904</u>	<u>3,162</u>
TOTAL PULMONARY AND NON-PULMONARY	<u>3,802</u>	<u>3,691</u>	<u>7,493</u>

*Classification in accordance with Memorandum 37/T (Revised) issued by the Ministry of Health in October, 1930. See Appendix X for definitions.

A further detailed analysis (including age-groups) of the number of tuberculous cases on the dispensary registers is given in Appendix III, from which the following proportions have been calculated :—

(a) PULMONARY TUBERCULOSIS.		Per 1,000 of child population (0 to 15).	Per 1,000 of adult population (15 and over).
Total number of cases of pulmonary tuberculosis per 1,000 of the population			2.30
Number of <i>active</i> cases per 1,000 of the population			1.35
Number of <i>quiescent</i> cases per 1,000 of the population			0.95
Number of <i>T.B. plus</i> cases—children		0.05	
adults			1.94
Number of <i>T.B. minus</i> cases—children		0.28	
adults			0.89
Of the total cases of pulmonary tuberculosis 3.20 per cent. were children under 15 years of age.			
(b) NON-PULMONARY TUBERCULOSIS.			
Total number of cases of non-pulmonary tuberculosis per 1,000 of the population			1.68
Number of <i>active</i> cases—children		1.19	
adults			0.52
Number of <i>quiescent</i> cases—children		2.05	
adults			0.72
Number of cases of :—			
Bones, joints and spine—children		0.77	
adults			0.37
Abdomen—children		0.28	
adults			0.11
Peripheral glands—children		2.11	
adults			0.45
Skin—children		0.05	
adults			0.19
Other organs—children		0.01	
adults			0.10

The foregoing proportions show the main factors in the incidence of tuberculosis, and if other authorities published similar information valuable comparisons could be made.

X-RAY EXAMINATIONS.

An x-ray plant for the use of the consultant tuberculosis officer is provided at one of the dispensaries in each of the five large areas. In the small areas, namely, Furness, Fylde, and Wigan County, the x-ray work is carried out at the respective institutions of which the consultant tuberculosis officer is also medical superintendent—High Carley, Elswick and Wroughtington.

A new plant was installed in May, 1938, at the Chorley Branch Dispensary, and also in November, 1938, at the Ashton-under-Lyne Chief Dispensary in replacement of the apparatus transferred to the Widnes Dispensary.

The following statement shows the x-ray work done at County dispensaries, sanatoria and hospitals during 1938 compared with several previous years :—

TABLE 16.

	1931.	1932.	1933.	1934.	1935.	1936.	1937.	1938.
Dispensary patients:								
Skiagrams	6,045	6,336	6,457	6,729	6,560	6,998	7,826	8,446
Screenings	1,417	2,163	2,638	3,408	3,464	3,471	3,265	4,608
Institution patients:								
Skiagrams	2,458	3,763	3,779	3,914	4,371	4,799	5,417	5,339
Screenings	2,988	3,418	4,147	4,426	4,857	5,006	5,616	6,934
Total	12,908	15,680	17,021	18,477	19,252	20,274	22,124	25,327

The greater amount of artificial pneumothorax treatment for which radiological control is necessary accounts mainly for the increasing number of x-ray examinations.

The policy of placing an apparatus in each dispensary area for use by the consultant tuberculosis officer and his staff is, from experience, found to be the best method, because the tuberculosis officer, with his knowledge of the patient's history and clinical signs, is most fitted to make a correct interpretation of the skiagrams.

HOUSING.

Housing conditions are known to be a most important factor in the spread of pulmonary tuberculosis, and the tuberculosis officers and the tuberculosis health visitors make every effort to secure that patients in an infective state occupy a separate bedroom, or at least a separate bed. To enable this to be done, bedsteads and mattresses are kept in stock at the dispensaries and are available for loan to patients otherwise unable to provide a separate bed. From care funds, necessitous cases are assisted to purchase the necessary bed clothes.

Copies of all reports by the tuberculosis health visitors on the detailed environmental conditions of a patient are forwarded to the appropriate medical officer of health.

Every instance of unsatisfactory housing is considered on its merits by the tuberculosis officer concerned, who, when the circumstances indicate, supports an application from the patient to the local authority for removal to a new house.

In a certain number of cases where the home conditions cannot be improved, and particularly when there are children in the home, the patient is removed to a County pulmonary hospital for isolation.

Power exists under Section 172 of the Public Health Act, 1936 (which came into operation on the 1st October, 1937), to secure the compulsory isolation of an infectious case on the order of the magistrates subject to the following conditions :—

“That the lodging or accommodation provided for that person is such that proper precautions to prevent the spread of infection cannot be taken, or that such precautions are not being taken.

“That serious risk of infection is thereby caused to other persons.

“That a suitable hospital or institution exists for the reception and accommodation of that person.”

So far, it has only been necessary for one County patient to be so dealt with, as satisfactory results are obtained by methods of persuasion. It must be borne in mind that all patients are instructed when at home and at institutions in the measures to take to prevent the spread of infection.

The following table shows the housing conditions of all patients under treatment or supervision at the end of 1938. Whilst every effort is made to secure that infectious cases occupy a separate room, or at least a separate bed, no useful purpose is served by the same insistence in regard to patients with the disease quiescent or arrested. The non-pulmonary cases are given separately, and only a very small number indeed may be considered infectious.

TABLE 17.—*Housing statistics of 7,493 County patients.*

	Pulmonary cases considered infectious.		Pulmonary cases considered not infectious.		Non-pulmonary cases.	
	Under 15 years of age.	15 years and over.	Under 15 years of age.	15 years and over.	Under 15 years of age.	15 years and over.
Patients occupying a separate bedroom	11	1,414	38	1,191	369	682
Patients occupying a separate bed, but not a separate bedroom	6	430	48	409	521	352
Patients not occupying a separate bed	—	102*	36	646	440	798
TOTAL	17	1,946	122	2,246	1,330	1,832

* 17 of these 102 cases were isolated in sanatoria or pulmonary hospitals at the end of 1938.

It will be seen that 102 patients suffering from pulmonary tuberculosis and considered to be infectious were not occupying a separate bed when at home at the time the census of the housing conditions was taken at the end of 1938. Of this number, 17 were away from home and isolated in pulmonary hospitals or sanatoria, leaving (from a total of 1,963 infectious cases) 85, or 4·3 per cent., infectious cases at home not occupying a separate bed. The percentage in 1937 was 2·9.

Appendix IV of this report shows the housing conditions of the patients in each dispensary area.

EXAMINATION OF HOUSE CONTACTS.

By the systematic examination of selected house contacts of tuberculous cases, particularly the contacts of patients with positive sputum, many early or unsuspected cases of tuberculosis are detected. Owing to indifference or unwillingness, difficulty is often experienced in persuading contacts to submit themselves for examination.

By direction of the Ministry of Health, Memorandum 37/T (Revised), cases are regarded as contacts only if the cause of their being examined is the fact that they have recently been, or still are, living in contact with some dispensary patient or other notified case ; many persons suffering, or suspected to be suffering, from tuberculosis who attend at the dispensary of their own accord, or who are referred by a private medical practitioner, may give a history of previous contact with a known case of tuberculosis, but this does not bring them within the definition of " contacts."

Co-operation takes place between the tuberculosis medical staff and the school medical officers. The latter refer doubtful or suspicious cases to the tuberculosis officer ; on the other hand the tuberculosis officer reports confidentially to the school medical officer the name of any school child who was or is actually in contact (*i.e.*, living in the same house) with an adult infectious case of pulmonary tuberculosis. The school medical officer is then able to take what action he considers desirable in regard to supervising the child or children so exposed to infection.

The following Table 18 shows the number of new contacts which have been examined in the Administrative County during 1938 :—

	Diagnosed as tuberculous.		Doubtful.	Non-tuberculous.	Total.
	Pulmonary.	Non-pulmonary.			
Examined at home	1	1	—	27	29
Examined at dispensary	24	5	6	1,032	1,067
Total	25	6	6	1,059	1,096
	31				

Of the 1,096 new contacts examined during the year, 31 were ultimately diagnosed as definite cases of tuberculosis—pulmonary 25, and non-pulmonary 6. These cases are equal to 28·28 per 1,000 of contacts examined, as against the proportion of 3·98 tuberculous persons, per 1,000 of the population, known to the dispensary staff in the County. Thus the examination of selected contacts revealed many more tuberculous cases proportionately than would be found in the ordinary population. It may be stated that of the 25 pulmonary cases, 10, or 40 per cent., were found to have positive sputum.

The following Table 19 gives in age-groups the number of selected contacts examined during the three years 1936-38, together with the number found to be suffering from pulmonary and from non-pulmonary tuberculosis :—

Age-group.	Total contacts examined.	Number found to be tuberculous.		
		Pulmonary		Non-pulmonary.
		Positive sputum.	Negative or no sputum.	
0- 5 years	295	—	1	10
5-10 years	579	—	2	5
10-15 years	568	6	9	5
15-25 years	525	9	16	5
25-35 years	454	9	6	2
35-45 years	355	7	9	1
45-55 years	220	3	1	2
55-65 years	94	2	2	—
65 years and over	13	—	—	—
Total all ages	3,103	36	46	30

EXAMINATION OF SPUTUM.

As an aid to diagnosis, arrangements are in existence for the examination, free of cost, of specimens of sputum sent by medical attendants. At the chief dispensary in each of the five large areas a small laboratory is installed for this work ; in the three small areas the examination of sputum is carried out at the institution in the area. In addition, an arrangement exists with the Director of the Public Health Laboratory, Manchester, for the examination of specimens, including inoculation tests.

Cultivation tests have been carried out in the laboratories at the Wrightington Hospital, the High Carley Sanatorium, and the Preston Dispensary, and gasolene concentration tests at the Elswick Sanatorium.

The following statement shows the results of the sputum examinations made at the dispensary laboratories in 1938, compared with the previous year :—

	1937.	1938.
Positive (<i>i.e.</i> , tubercle bacilli present)	1,369	1,408
Negative (<i>i.e.</i> , tubercle bacilli not found)	6,365	6,381
Total	<u>7,734</u>	<u>7,789</u>

In addition to the 7,789 examinations made at the dispensary laboratories, the following work was done during 1938 at the Public Health Laboratory, Manchester :—

Inoculation tests	143
Inoculation tests and cultures for tubercle bacilli	23
Inoculation tests and cultures for other organisms	4
Cultivation tests	5
Typing for bovine or human strain	1
Microscopical examinations	1

TUBERCULOSIS AND THE MILK SUPPLY.

The tuberculosis officers co-operate with the local medical officers of health in regard to any case of tuberculosis in a child in which the milk supply is suspected of being the source of infection. The initial procedure is for the tuberculosis officer to inform the medical officer of health, to ask if he is willing to have a bacteriological examination made of the suspected milk, and to take action, if necessary, on the farm. If the milk is designated, *e.g.*, accredited, then the matter is dealt with by the County Medical Officer of Health.

TUBERCULOSIS OFFICERS' VISITS TO SANATORIA AND HOSPITALS.

Periodical visits (mostly monthly) have continued to be paid by the tuberculosis officers to the majority of the pulmonary hospitals, non-County sanatoria, and special hospitals treating County patients. These visits are of mutual help, inasmuch as they keep in touch the medical superintendent and the tuberculosis officer, who are able to confer on the patients' future treatment, the home circumstances, the provisions of the County scheme, and so on.

The following is the rota of visits for 1939 :—

Dr. G. H. Leigh	.....	Heath Charnock Pulmonary Hospital.
Dr. B. MacPhee	.....	Eastby and Wilkinson Sanatoria.
Dr. G. Fletcher	.....	Aitken and Springfield Sanatoria, and Chadderton Pulmonary Hospital.
Dr. G. Jessel	.....	Liverpool Open-air Hospital for Children, Leasowe, and Royal Liverpool Children's Hospital, Heswall and Thingwall Branches.
Dr. C. W. Laird	.....	Barrowmore Tuberculosis Sanatorium and Settlement, and Eccleston Hall and Hefferston Grange Sanatoria.
Dr. G. Leggat	.....	Westmorland Sanatorium.
Dr. E. H. A. Pask	.....	Pemberton Pulmonary Hospital, Derwen Cripples' College, and Robert Jones and Agnes Hunt Orthopaedic Hospital.
Dr. F. C. S. Bradbury	.....	Halifax Sanatorium.

PROVISION OF SPECIAL NOURISHMENT.

Special nourishment is granted to tuberculous patients on the following conditions, which have been approved by the Ministry of Health :—

- (1) That special nourishment be in no case ordered for a period of more than three months, and if in any case a continuance of the treatment is considered from a medical point of view desirable, the Central Tuberculosis Officer to report the case specially to the County Tuberculosis Committee.
- (2) That special nourishment be granted to patients who are waiting for admission to sanatoria or hospitals, or have returned therefrom, when it is thought to be medically essential as part of the cure of the disease.
- (3) That special nourishment may be allowed to cases not included in the foregoing, provided that particulars of the cases are laid before the County Tuberculosis Committee for consideration.
- (4) That each grant of special nourishment will only be allowed by the County Tuberculosis Committee subject to the patient carrying out, in a satisfactory way, the medical treatment and such general hygienic measures as may be advised by the medical practitioner and tuberculosis officer.
- (5) That special nourishment be limited to orders for new milk and cream, unless on special report other nourishment be found desirable.
- (6) That the limit of expenditure be 7/- per week, unless an amount in excess of this sum is specially recommended on medical grounds by the Central Tuberculosis Officer and sanctioned by the County Tuberculosis Committee.

During the year, 2,456 grants of special nourishment for varying periods were made to 1,049 individual patients as part of their medical treatment. The figures in 1937 were 2,185 grants to 963 patients.

SPECIAL SURGICAL APPLIANCES.

During 1938 the following surgical appliances were supplied to patients on the recommendation of the tuberculosis officers :—

Artificial limbs, 2; back supports, 6; body belt, 1; caliper splints, 14; crutches, 2 pairs; foot splints, 2; hip splints, 4; hip supports, 2; knee splints, 4; leather anklets, 6; leather supports, 3; pattens, 2; peg legs, 3; sacro-iliac belts and supports, 8; spinal frame, 1; spinal supports, 48; surgical boots, 31; truss, 1; urinals, 9; wrist splint, 1.

PROVISION OF BEDSTEADS, MATTRESSES AND NURSING REQUISITES.

In each County dispensary area a small stock of bedsteads, mattresses (but not bedding), and nursing requisites belonging to the County Council is available for loan to necessitous patients undergoing home treatment.

The bedsteads and mattresses, which are held at the disposal of the consultant tuberculosis officers, have proved of valuable assistance in securing the better sleeping accommodation at home of pulmonary cases considered to be infectious.

The table following shows the number of these articles owned by the County Council, and also the number of patients who have been granted the use of the articles :—

TABLE 20.

Articles.	Quantity owned by County Council, 31/12/38.	Number of patients to whom articles have been loaned during 1938.	Articles in possession of patients on 31/12/38.
Bedsteads	222	45	193
Mattresses	224	45	189
Mattress covers	172	32	143
Mattress felts	3	2	2
Air beds	9	6	4
Air cushions	173	134	114
Air pumps	4	—	—
Bath chairs	9	1	1
Bed cradles	8	2	1
Bed pans	101	87	59
Bed rests	54	49	31
Bed Slippers	74	17	12
Extension apparatus	14	—	—
Fracture boards	2	—	—
Ground sheets	22	3	13
Hot water bottles	4	—	1
Rest chairs	5	2	3
Rubber sheets	23	1	1
Spinal boxes	16	—	—
Spinal carriages	12	2	1
Sponge beds	3	2	1
Urinals	96	70	59
Water beds	4	—	—

SLEEPING SHELTERS.

There were, at the end of the year, 24 shelters in use by patients at their homes.

The loan of sleeping shelters is made to suitable cases on the recommendation of the tuberculosis officer, after careful consideration of the following points : (1) The condition of the patient and his ability to use the shelter properly ; (2) the position of the shelter ; (3) the home conditions of the patient ; and (4) the means of communication with the nearest inhabited building in case of a sudden relapse.

The number of persons in 1938 who were allowed the use of the shelters was 44.

I have to thank medical officers of health and sanitary inspectors throughout the County for much valuable help in connection with the removal, disinfection, and re-erection of shelters used by County patients.

EDUCATION OF THE PUBLIC.

Lectures on tuberculosis are given from time to time to organised bodies and the general public by the County tuberculosis officers. In October, 1938, this educational propaganda was assisted by Dr. Harley Williams, the then Medical Commissioner of the National Association for the Prevention of Tuberculosis, who addressed 16 meetings in Dispensary Area No. 3 (at Chadderton, Droylsden, Heywood, and Radcliffe) and in Dispensary Area No. 5 (at Earlestown, Huyton, Prescott, and Skelmersdale). The addresses were given to older scholars in the afternoon, and to adults in the evening. The lectures, illustrated by cinematograph films, were well attended and appreciated.

TUBERCULOSIS HEALTH VISITORS.

The staff of 33 whole-time tuberculosis health visitors are responsible for (a) the visitation of patients in their homes for the purpose of general supervision and for giving special attention to patients, such as the application of dressings and surgical appliances ; and (b) for attending dispensary sessions in connection with diagnosis, supervision, x-ray examination and treatment (including a.p. refills and artificial light). They are all general-trained nurses with considerable social experience ; many of them have a certificate in sanitation or health visiting. They are whole-time specialists in their branch of nursing work ; with only an occasional exception no other nurses are employed for home supervision and

dispensary treatment. Thus *one* nurse deals with the patient and his family, a matter not without importance in combining prevention and treatment. In districts with a scattered population, the tuberculosis health visitors make use of small motor cars. Another duty they perform is to accompany patients too ill to travel alone on admission to or discharge from a sanatorium or hospital ; travel may be by ambulance (four ambulances under the direct control of the Central Tuberculosis Officer ; other ambulances hired as required), taxi or train. Each nurse thus has a good variety of work.

Special mention may be made of the arrangement whereby a tuberculosis health visitor writes out a report on the environmental conditions of every new case of tuberculosis. This report, after being countersigned by the consultant tuberculosis officer, is forwarded to the medical officer of health of the particular district who accepts it. This renders unnecessary a visit by the sanitary inspector unless there are any sanitary defects in the house, to which attention is drawn in the report. This prevents overlapping by two officials for one and the same purpose, and is believed to be appreciated by the patients.

The tuberculosis health visitors are encouraged to work in the closest co-operation with the local health department (to obtain early information of new notifications), the relieving officers of the Public Assistance Committee, the officers of the Unemployment Assistance Board, the British Legion, and social service organisations.

During 1938, the number of visits paid by the tuberculosis health visitors to the homes of patients totalled 42,306, details of which will be found on page 49.

CLERICAL ASSISTANCE FOR TUBERCULOSIS OFFICERS.

Adequate clerical assistance has always been provided in each dispensary area. The tuberculosis officers have thus been relieved of a considerable amount of the administrative work, and are able to devote almost the whole of their time to medical work. This is an undoubted economy to the County Council. The following are some of the principal duties of the dispensary clerical staff :—

Administrative arrangements to secure the supervision of patients numbering up to 1,500 according to the particular area.

Dealing with enquiries from doctors, medical officers of health and institutions (often by telephone) concerning particular patients ; drafting letters for tuberculosis officers.

Arranging for patients to attend the dispensaries or to be examined at home at the proper intervals, and dealing with recommendations for treatment made by the tuberculosis officers.

Preparing statistical returns, including information required for the Ministry of Health.



COUNTY COUNCIL.

G. LISSANT COX, M.D.

CENTRAL TUBERCULOSIS
OFFICER.

TELEPHONE No. 4868.

COUNTY OFFICES,

PRESTON.

11th November 1939.

ENCLOSURE.

Dear Dr. Macewen,

Enclosed please find a copy of my last annual report. I hope you may find something of interest in the frontispiece and in the introduction on pages vii. to xiv.

The surgical treatment of pulmonary tuberculosis has again been a feature of the work at High Carley Sanatorium, and full particulars (with illustrative skiagrams) will be found on pages 91 to 97.

Yours sincerely,

G. Lissant Cox.

Dr. H.A. Macewen, O.B.E.,
Ministry of Health,
Whitehall,
London, S.W. 1.

LANCASHIRE COUNTY COUNCIL.

Table A.—List of Tuberculosis Dispensaries in use in October, 1939, and the Tuberculosis Officers for the Dispensary Areas.

DISPENSARY AREA.	COUNTY DISTRICTS.			Estimated POPULATION 1938.	Area MEDICAL STAFF and Senior Dispensary Clerks, October, 1939.	NURSING STAFF.	DISPENSARIES.	Days and Hours of DISPENSARY SESSIONS (Distinct from Home Visiting, attending Sanatoria, Hospitals and Care Committees, etc.).
(1)	(2)			(3)	(4)	(5)	(6)	(7)
1	Adlington Blackrod Carnforth Chorley (B.) Chorley (R.) Fulwood Garstang (R.), part of, consisting of parishes of— Harnacre-with-Bonds Hillsborough	Garstang (R.) <i>cont.</i> Bleasdale Cabus Catterall Cloughton Forton Garstang Kirkland Myerscough Nateby Nether Wyresdale Whinmarleigh	Horwich Lancaster (B.) Lancaster (R.) Leyland Longridge Lunesdale (R.) Morecambe & Heysham (B.) Preston (R.) Walton-le-Dale Withnell	258,895	Dr. G. H. Leigh, Tuberculosis Dispensary, 8, Middle Street, Lancaster. Assistant Tuberculosis Officer— Dr. F. C. S. Bradbury Dispensary Clerk— Mr. D. Lee	Nurse L. Walker Nurse A. Dickinson Nurse G. M. Hunter Nurse F. D. Abbott	LANCASTER (Chief), 8, Middle Street (Tel. No. 568). (Artificial Light Apparatus). CHORLEY (Branch), 34, St. Thomas's Road (Tel. No. 2763). (X-ray and Artificial Light Apparatus). PRESTON (Branch), 12, Walton's Parade (Tel. No. 2910). (Artificial Light Apparatus).	Monday, 12 noon. Other days and evenings by appointment. Thursday, 12 noon. Other days and evenings by appointment. Wednesday, 11 a.m. Other days and evenings by appointment.
	Acreage 206,020							
2	Accrington (B.) Bacup (B.) Barrowford Blackburn (R.) Brierfield Burnley (R.) Church	Clayton-le-Moors Clitheroe (B.) Clitheroe (R.) Colne (B.) Darwen (B.) Great Harwood Haslingden (B.)	Nelson (B.) Oswaldtwistle Padham Rawtenstall (B.) Rishton Trawden Turton	319,084	Dr. B. MacPhee, Tuberculosis Dispensary, High Lea, 108a, Whalley Road, Accrington. Assistant Tuberculosis Officers— Dr. S. C. Adam Dr. D. O. Hughes (2 days per week) Dispensary Clerk— Mr. C. Dowbiggin	Nurse L. F. Norwood Nurse E. Watterson Nurse M. Duggan Nurse H. M. Alcock Nurse E. H. Scott Nurse L. M. Lloyd	ACCRINGTON (Chief), High Lea, 108a, Whalley Road (Tel. No. 2443). (X-ray and Artificial Light Apparatus). DARWEN (Branch), 20, Railway Road (Tel. No. 408). NELSON (Branch), 64, Carr Road (Tel. No. 507). (Artificial Light Apparatus). STACKSTEDS (Branch), Knott Hill House (Tel. No. Bacup 201). (Artificial Light Apparatus).	Tuesday, 2 p.m. Wednesday, 2 p.m. Monday, 10 a.m. Tuesday, 2 p.m. Friday by appointment. Monday, 2 p.m.
3	Ashton-under-Lyne (B.) Audenshaw Chadderton Crompton Denton Droylsden Failsworth Heywood (B.)	Lees Limehurst (R.) Littleborough Middleton (B.) Milnrow Mossley (B.) Prestwich Radcliffe (B.)	Ram-bottom Royton Tottington Wardle Whitefield Whitworth	384,058	Dr. G. Fletcher, Tuberculosis Dispensary, Lees Street, Ashton-under-Lyne. Assistant Tuberculosis Officers— Dr. J. L. Armour Dr. W. Fettes Dispensary Clerk— Mr. A. L. Wright	Nurse C. Guilfoyle Nurse M. Sherwen Nurse W. Swift Nurse I. F. Macdonald Nurse A. E. Webster Nurse A. Flynn Nurse E. Sandham Nurse M. Sherwen Nurse E. Sandham Nurse W. Swift	ASHTON-UNDER-LYNE (Chief), Lees Street (Tel. No. 1775). (X-ray and Artificial Light Apparatus). CHADDERTON (Branch), Brook Street (Tel. No. Main 1671). RADCLIFFE (Branch), 41, Darbyshire Street (Tel. No. 2323). (Artificial Light Apparatus). ROCHDALE (Branch), 168, Drake Street (Tel. No. 3892).	Monday, 10-30 a.m. x-ray exams. Tuesday, 2-30 p.m. Friday, 10 a.m. 1st Tuesday of month, 6-30 p.m. Monday, 2 p.m. Wednesday, 10 a.m. 2nd Monday of month, 6-30 p.m. Wednesday, 2 p.m. 3rd Wednesday of month, 6-30 p.m. Thursday, 10-30 a.m. 2nd Thursday of month, 6-30 p.m.
4	Atherton Eccles (B.) Farnworth Golborne Irlam Kearsley	Leigh (B.) Little Lever Stretford (B.) Swinton and Pendlebury (B.) Tyldesley	Urmston Westthroughton Worsley	371,926	Dr. G. Jessel, Tuberculosis Dispensary, 13, Church Street, Leigh. Assistant Tuberculosis Officers— Dr. A. B. Jamieson Dr. H. J. Villiers Dispensary Clerk— Mr. T. Naylor	Nurse A. Boardman Nurse M. Sutcliffe Nurse H. M. Shakespeare Nurse I. Wilkinson Nurse F. G. Smith Nurse M. B. Jones Nurse K. Blakemore	LEIGH (Chief), 13, Church Street (Tel. No. 258). ECCLES (Branch), 28 & 30, Gilda Brook Road (Tel. No. 3533). (X-ray and Artificial Light Apparatus). FARNWORTH (Branch), 19-23, Darley Street (Tel. No. 63). PENDLEBURY (Branch), 121, Station Road (Tel. No. Swinton 1895). STRETTFORD (Branch), 14, Derbyshire Lane (Tel. No. Longford 2010).	Wednesday, 10 a.m. Friday, 10 a.m. 2nd Thursday of month, 6-30 p.m. Tuesday, 2 p.m.; 2-30 p.m. x-ray exams. Thursday, 2-30 p.m. x-ray exams. Friday, 10 a.m. 1st Wednesday of month, 6-30 p.m. Tuesday, 10 a.m. Friday, 2 p.m. 3rd Thursday of month, 6-30 p.m. Monday, 2 p.m. Last Thursday of month, 6-30 p.m. Tuesday, 10 a.m. Thursday, 10 a.m. Last Monday of month, 6-30 p.m.
5	Crosby (B.) Fornby Haydock Huyton-with-Roby Litherland	Newton-le-Willows Ormskirk Prescot Rainford Skelmersdale	Warrington (R.) West Lancashire (R.) Whiston (R.) Widnes (B.)	310,025	Dr. C. W. Laird, Tuberculosis Dispensary, 7, Claremont Road, Seaforth. Assistant Tuberculosis Officers— Dr. C. Berry Dr. J. N. Whyte Dispensary Clerk— Mr. H. Watson	Nurse I. M. Corfield Nurse M. J. McKeown Nurse L. Farquhar Nurse E. M. Crone Nurse L. Farquhar Nurse I. M. Corfield Nurse M. J. Wilson	*SEAFORTH (Chief), 7, Claremont Road (Tel. No. Waterloo 688). (X-ray Apparatus). HUYTON (Branch), 95, Blue Bell Lane (Tel. No. 383). ST. HELENS (Branch), 90, Hardshaw Street (Tel. No. 3916). (Artificial Light Apparatus). WIDNES (Branch), Chapel Street (Tel. No. 2156). (X-ray Apparatus).	Monday, 2-30 to 4-30 p.m. Wednesday afternoon by appointment. Thursday, 10 a.m., x-ray exams. Friday, 10 to 11-30 a.m. 3rd Thursday of month, 6 p.m. Thursday, 2 p.m. Other days by appointment. 2nd Thursday of month, 6 p.m. Tuesday, 2-30 to 4-30 p.m. Last Tuesday of month, 6 to 7 p.m. Monday, 10 to 11-30 a.m. Tuesday morning by appointment. Friday, 2 to 4 p.m. 1st Wednesday of month, 6 to 7 p.m.
Furness	Dalton-in-Furness Grange-over-Sands	Ulverston	Ulverston (R.)	38,122	Dr. G. Leggat, High Carley Sanatorium, near Ulverston (Tel. No. Ulverston 110). Dispensary Clerk— Mr. F. D. Nichols (to 20/11/39). Mr. W. Baythorp (from 21/11/39)	Nurse E. A. Duston	ULVERSTON, 69, Albion Place, Lighthouse Avenue (Tel. No. 145). (Artificial Light Apparatus). (X-ray Apparatus at High Carley Sanatorium).	Tuesday, 10 a.m. Thursday, 10 a.m.
Fylde	Fleetwood (B.) Fylde (R.) Garstang (R.), part of, consisting of parishes of— Great Eccleston Hambleton	Garstang (R.) <i>cont.</i> Inskip-with-Sowerby Out Rawcliffe Pilling Stalmine-with-Stainall Upper Rawcliffe	Kirkham Lytham St. Annes (B.) Poulton-le-Fylde Preesall Thornton Cleveleys	89,548	Dr. G. B. Charnock, Elswick Sanatorium, near Preston. Assistant Tuberculosis Officer— Dr. D. O. Hughes (3½ days per week) Dispensary Clerk— Mr. H. E. Langham	Nurse A. Tweedy	FLEETWOOD, 23, Poulton Road (Tel. No. 282). (Artificial Light Apparatus). ELSWICK Sanatorium, near Preston (Tel. No. Great Eccleston 22). (X-ray Apparatus).	Tuesday, 9 a.m. Wednesday, 10 a.m. by appointment.
Wigan County	Abram Ashton-in-Makerfield Aspull Billinge and Winstanley	Hindley Ince-in-Makerfield Orrell Standish-with-Langtree	Upholland Wigan (R.)	108,942	Dr. E. H. A. Pask, Wrightington Hospital, Appley Bridge, near Wigan (Tel. No. Appley Bridge 338). Assistant Tuberculosis Officer— Dr. E. H. W. Deane Clerk and Steward— Mr. H. E. Watson	Nurse E. Walters Nurse M. J. Evans	WIGAN, 3, Mesnes Park Terrace (Tel. No. 3172). (Artificial Light Apparatus). (X-ray Apparatus at Wrightington Hospital).	Monday, 9-30 a.m. Thursday, 9-30 a.m. 4th Thursday of month, 6-30 p.m.
Total acreage of Admin. County				1,028,130	1,880,600			

*Seaforth Dispensary will close at the end of 1939 with the opening of the new dispensary, "Ellesmere," Crosby Road North, Waterloo.

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System of keeping records of each patient, including medical reports and x-ray films, ready for immediate reference.

Initiation of requisitions for dispensary supplies; examining accounts and despatch to central office.

Helping in supervision of the administrative work of the tuberculosis health visitors.

Assisting with clerical work for voluntary care committees.

Initial attention to the upkeep of the dispensaries (repairs, decorations, renovations, replacements, etc.).

TUBERCULOUS EX-SERVICEMEN.

Of the 7,493 patients under supervision of the dispensary staff at the end of 1938, 109 were discharged sailors, soldiers or airmen whose disease was held by the Ministry of Pensions to be attributable to or aggravated by service in the Great War, a pension being granted for the disability. The number of these tuberculous pensioners is declining, falling from 1,017 at the end of 1922 to the figure of 109 mentioned above.

TUBERCULOSIS DISPENSARIES AND STAFF.

Table A, here inserted, shows the dispensary areas with the populations, present staffs, the addresses of the 24 dispensaries in use, and the days and times on which they are open.

EVENING SESSIONS AT DISPENSARIES.

As in previous years, evening sessions have been regularly held at most of the dispensaries for the convenience of patients who are at work during the day.

ARTIFICIAL LIGHT TREATMENT.

A report on the work done at the artificial light centres established at thirteen of the dispensaries is given in Chapter IX.

STATISTICS REQUIRED BY MINISTRY OF HEALTH.

By Memorandum 37/T (Revised), issued in October, 1930, the Ministry require certain information concerning the work done at tuberculosis dispensaries. These statistics, in Table A of the Memorandum, are given in Appendix V of this report.

RECOVERED CASES.

Since 1926 the Ministry of Health have allowed cases of pulmonary tuberculosis to be written off the dispensary registers as recovered, provided the disease has been quiescent for two years and arrested for a further three years. During 1938, 232 pulmonary cases were written off the registers as recovered; of these, 45 were classified as T.B. plus 1, 39 as T.B. plus 2, and 1 as T.B. plus 3.

In regard to non-pulmonary tuberculosis, cases may be written off the registers as recovered if arrest of the disease has been maintained for at least three years. During 1938, 477 non-pulmonary cases were so written off.

On the other hand, in 1938, 43 cases were restored to the registers after having been written off as recovered in previous years ; 18 of these were pulmonary cases when originally on the registers (11 being classified as T.B. plus) and 25 were non-pulmonary.

SUMMARY OF DISPENSARY WORK DONE BY TUBERCULOSIS
OFFICERS IN 1938, SHOWING COMPARISON WITH 1937.

VISITS BY TUBERCULOSIS OFFICERS TO PATIENTS' HOMES—		1937	1938
(a)	Number of new persons (including new contacts) examined for diagnosis or expert opinion	1,064	1,022
(b)	Number of re-examinations of "old" cases and "old" contacts—		
1.	Respecting continued general supervision or dispensary treatment	3,076	3,136
2.	Contacts respecting diagnosis	8	14
3.	Other cases respecting diagnosis	198	179
4.	For special forms of treatment or examinations resulting therefrom—		
	Aspirations	5	6
	Adjustment of splints and surgical appliances	227	242
	Lupus cases	33	31
	Pneumothorax (refills)	2	2
	Tuberculin	1	2
	Mantoux tests	12	8
	Hamburger tests	1	—
		<u>4,627</u>	<u>4,642</u>

DISPENSARY ATTENDANCES BY PATIENTS—

(a)	Number of new persons (including new contacts) examined for diagnosis or expert opinion	4,765	5,106
(b)	Number of re-examinations of "old" cases and "old" contacts—		
1.	Respecting continued general supervision or dispensary treatment	13,132	14,224
2.	Contacts respecting diagnosis	393	387
3.	Other cases respecting diagnosis	2,398	2,578
4.	For special forms of treatment or examinations resulting therefrom—		
	Artificial light (Lancaster, Chorley, Preston, Accrington, Nelson, Stacksteads, Ashton-under-Lyne, Radcliffe, Eccles, St. Helens, Ulverston, Fleetwood and Wigan Dispensaries)	27,604	26,853
	Aspirations	101	138
	Adjustment of splints and surgical appliances	943	1,056
	Lupus cases	582	639
	Pneumothorax (refills)	2,212	2,846
	Tuberculin	328	239
	Hydnocarpates	245	209
	Mantoux tests	292	354
	Blood sedimentation tests	211	211
	Hamburger tests	35	33
	Vollmer patch tests	—	13
	Other forms	70	90
		<u>53,311</u>	<u>54,976</u>

X-RAY EXAMINATIONS AT COUNTY DISPENSARIES AND INSTITUTIONS—

(a)	Dispensary patients	11,091	13,054
(b)	Institutional patients	11,033	12,273
		<u>22,124</u>	<u>25,327</u>

	1937	1938
EXAMINATIONS OF SPUTUM AT COUNTY DISPENSARIES	7,734	7,789
NUMBER OF RECOMMENDATIONS BY TUBERCULOSIS OFFICERS—		
1. Sanatorium or hospital treatment	1,585	1,526
2. Dispensary treatment or general supervision	9,319	8,974
3. Provision of special nourishment	2,185	2,456
4. Provision of surgical appliances	117	141
5. Loan of shelters	13	8
6. Diagnosis not confirmed—		
(a) Notified cases	114	131
(b) Non-notified cases	4	6
7. Cases written off the registers as refusing treatment	18	37
8. Pulmonary cases written off the registers as recovered	203	232
9. Non-pulmonary cases written off the registers as recovered	522	477
CARE COMMITTEE MEETINGS ATTENDED BY—		
(a) Tuberculosis officers	68	50
(b) Tuberculosis health visitors	132	111
LECTURES OR ADDRESSES GIVEN ON TUBERCULOSIS	11	20
CONSULTATIONS WITH MEDICAL PRACTITIONERS—		
(a) Personal	592	560
(b) Other	6,822	7,427
VISITS BY TUBERCULOSIS OFFICERS TO SANATORIA, AND PULMONARY, SPECIAL, AND PUBLIC ASSISTANCE HOSPITALS	372	396
SPECIAL VISITS BY TUBERCULOSIS OFFICERS (<i>i.e.</i> , interviews with medical officers of health, general hospital officials, &c.)	78	52
EXAMINATIONS OF ENTRANTS TO INDUSTRY UNDER SANDSTONE INDUSTRY (SILICOSIS) SCHEME, 1929	62	42
VISITS BY DISPENSARY NURSES TO PATIENTS' HOMES—		
(a) Routine visits	37,224	38,057
(b) Application of surgical dressings	1,668	1,527
(c) Adjustment of splints and surgical appliances	1,296	1,462
(d) Other actual nursing	1,305	1,260
	<u>41,493</u>	<u>42,306</u>
PATIENTS' DISPENSARY ATTENDANCES FOR ATTENTION BY NURSES—		
(a) Application of surgical dressings	2,901	2,818
(b) Adjustment of splints and surgical appliances	262	276
	<u>3,163</u>	<u>3,094</u>
PERCENTAGE OF NEW CASES REFERRED BY MEDICAL PRACTITIONERS, ETC., to tuberculosis officers for an opinion as to diagnosis or treatment <i>before statutory notification</i>	92%	92%

IX.—TREATMENT OF TUBERCULOSIS BY ARTIFICIAL LIGHT.

PRESENT POSITION OF THE COUNTY SCHEME.

Commencing with two experimental light centres in 1925, the County Council have now established 13 artificial light departments at the following County tuberculosis dispensaries: Lancaster, Chorley, Preston (Area No. 1); Accrington, Nelson, Stacksteads (Area No. 2); Ashton-under-Lyne, Radcliffe (Area No. 3); Eccles (Area No. 4); St. Helens (Area No. 5); Ulverston (Furness Area); Fleetwood (Fylde Area); and Wigan (Wigan County Area). A list of the lamp equipment was contained in the annual report for 1937.

The treatment of the patients has been carried out under the direct supervision of the consultant tuberculosis officer of each dispensary area and by the medical and nursing staffs under him.

RESULTS OF TREATMENT.

Returns showing the results of treatment at each light centre during 1938 have been received from the consultant tuberculosis officers of the dispensary areas, and are summarised in the following Table 21 :—

Form of tuberculosis or part of body affected.	Number of cases on treatment on 1-1-38.	Number of cases commencing treatment in 1938.	Condition of patients whose treatment concluded in 1938.				Ceased treatment for other reasons. *	Still under treatment at end of 1938.
			Quiescent and apparently well. §	Improved.	Stationary.	Worse.		
Skin	100	29	6	4	—	—	22	97
Adenitis with abscess formation and skin involvement	122	147	121	16	—	—	27	105
Adenitis without softening	97	159	111	8	3	1	37	96
Bones, joints and spine	7	21	9	2	—	—	7	10
Abdomen	13	23	12	1	—	—	8	15
Other non-pulmonary conditions	9	10	5	2	—	—	5	7
Lungs—sputum negative	2	—	—	1	—	—	—	1
Pulmonary and non-pulmonary combined	1	—	—	—	—	—	—	1
Total for 1938	351	389						
	740†		264	34	3	1	106	332
For comparison, the total in 1937 was	321	381						
	702‡		235	21	5	1	89	351

* Includes: (1) Patients who did not receive two months' treatment; (2) patients ceasing light treatment prematurely (*e.g.*, removals, unwilling or unable to continue); and (3) patients transferred to sanatoria or hospitals.

† Adults, 317; children, 423. ‡ Adults, 312; children, 390.

§ The term "quiescent and apparently well" has been chosen to express the condition of a lesion which has been healed by artificial light treatment. By direction of the Ministry of Health no case of non-pulmonary tuberculosis is written off the tuberculosis registers as "recovered" until three years have elapsed without any signs or symptoms of active disease.

The results of treatment of cases of non-pulmonary tuberculosis in 1938 may be considered satisfactory, particularly for two groups of cases, namely : (i) Adenitis with abscess formation and skin involvement, and (ii) adenitis without softening.

The average gain in weight of the 264 patients who became " quiescent and apparently well " was as follows :—Adults 4·8 lbs. ; children 5·8 lbs.

The degree of pigmentation attained in these 264 patients was : Deep 69, medium 47, light 81, none 67.

During 1938, 29 patients, who had ceased treatment in a previous year with the disease quiescent and apparently well, relapsed and returned for further treatment ; the classification of these cases was as follows :—Skin 4 ; adenitis with abscess formation and skin involvement 11 ; adenitis without softening 12 ; and bones and joints 2.

AVERAGE DURATION OF TREATMENT.

The duration of light treatment has varied widely according to the type of non-pulmonary disease. Taking the several groups of patients who during 1938 concluded treatment with the disease quiescent and apparently well, the average duration is as given in the following Table 22 :—

Form of tuberculosis or part of body affected.	Number of cases (active on commencing light treatment) which became quiescent and apparently well.	Average duration of light treatment.
		Months.
Skin	6	23·7
Adenitis with abscess formation and skin involvement	121	9·9
Adenitis without softening	111	8·0
Bones, joints and spine	9	14·1
Abdomen	12	6·5
Other non-pulmonary conditions	5	11·2

ATTENDANCE OF PATIENTS.

The frequency of attendance of patients depends on several factors, but at seven of the centres the great majority of patients attend twice per week, at five centres three times per week, and at one centre four times per week. Evening sessions are held for the convenience of those patients who are at work and unable to attend the centres during the day.

Of the total patients attending during the year, 84 per cent. were able to continue their normal occupation during the course of treatment ; 36 per cent. were assisted by the payment of railway, bus or tram fares to and from the centres.

During 1938, the attendances of patients at the 13 dispensary light centres numbered 26,853.

PHOTOGRAPHIC RECORDS.

In order to record the progress made by patients, photographs have been taken of a number of cases treated by light—at commencement, during the course of treatment, and on termination.

X.—THE TREATMENT OF PULMONARY TUBERCULOSIS IN RESIDENTIAL INSTITUTIONS.

The most expensive part of a tuberculosis scheme is the cost of maintaining patients in sanatoria or hospitals. The practice of the tuberculosis medical staff has always been conservative in regard to diagnosis, particularly in children, and every opportunity has been taken to adopt up-to-date methods of diagnosis. For this purpose the County Council have allowed their senior medical staff to attend post-graduate courses and to undertake research.

A very thorough examination at the dispensary, and especially the use there of a good x-ray plant, ensures that only cases with definite tuberculosis are taken on the registers and afforded treatment. This saves a considerable amount of public money by reducing the number of beds required for the treatment of patients.

As regards pulmonary adults, should tuberculosis institutions treat separately or on the same site the observation, the early, the chronic, and the acute case? The problem of dealing with the tuberculous—and more particularly the chronic tuberculous—patient cannot be decided on the basis of a separation of what may be called good and bad cases. The superintendent of an isolated sanatorium is always wishing to have his institution cleared of chronic and advanced cases. While very understandable, this does not help in the prevention and treatment of tuberculosis as a whole. Experience has shown that, by the use of x-rays and minor collapse therapy in tuberculosis institutions—not too big, situated near the patients' homes, superintended or attended by the tuberculosis officer, and taking all types of pulmonary cases—prevention and treatment go hand in hand, and the title given to the institution—hospital or sanatorium—is of little importance.

I believe then that tuberculosis institutions for pulmonary disease should treat on one and the same site the good, the bad, and the intermediate case, and treatment will often have to be of long duration.

Arrangements for the institutional treatment of pulmonary children (up to 15 years of age) require careful consideration, and such patients should be divided into three categories and dealt with in institutions as follows :—

- Class 1. Children with positive sputum (indicating the adult type of pulmonary tuberculosis) : should be provided with separate accommodation at institutions for adult pulmonary cases.
- Class 2. Children with negative or no sputum : should be treated at sanatorium schools.
- Class 3. Children with indefinite symptoms, generally known as the pre-tuberculous type : should attend open-air schools provided by the local education authority.

The conservative attitude adopted in diagnosing adults and children suspected to be suffering from pulmonary tuberculosis is evident from the proportion (33·2 per cent.) of pulmonary cases on the dispensary registers classified as T.B. minus at the end of 1938. In contrast six large counties, with a population in the region of a million, show an average percentage of 45·1 T.B. minus cases ; for England and Wales the proportion was 48·0.

A further factor seriously affecting the number of beds required is the duration of treatment allowed to a patient. Here again every case has to be carefully weighed on its merits, but generally the following principles have been adopted :—

(a) Patients who are responding to institutional treatment are given a prolonged stay (6 months and over) so long as there is a likelihood of the disease becoming quiescent. To return such cases to their homes and to work before attaining quiescence is uneconomical because of the danger of the patient breaking down and all the good of institutional treatment being wasted.

(b) Patients, particularly the young adult group (aged 15-25) who have been given special forms of treatment (*e.g.*, artificial pneumothorax, phrenicectomy, thoracoplasty, sanocrysin) are allowed a sufficient stay (say, up to 6 months) to show progress from their treatment and are retained up to 12 months or more if their condition warrants it ; cases treated by artificial pneumothorax attend after discharge at the dispensaries for a continuation of their treatment.

(c) Patients whose sputum has never been positive and who are not likely to make further progress or to require special treatment are allowed to return home at the end of two or three months' treatment. Many sputum examinations are made in this type of case and the usual practice is to make three tests of consecutive daily specimens.

(d) Patients with positive sputum who are not likely to make further progress and whose home conditions are reasonably satisfactory are allowed to return home at the end of two or three months' treatment.

The tuberculosis officers when making recommendations for institutional treatment bear in mind the following questions : (1) Is institutional treatment required to improve the patient's health ? (2) Is institutional treatment desirable to secure nursing care which cannot be obtained at home ? (3) Is institutional treatment necessary to prevent the spread of infection ?

All the patients in sanatoria and hospitals receive the benefit of and training in hygiene which is advantageous to themselves, and a protection to others, when they return home.

IMMEDIATE RESULTS OF INSTITUTIONAL TREATMENT.

The following Table 23 summarises the *immediate* results of treatment of patients discharged in 1938 from sanatoria and pulmonary hospitals :—

Classification on admission to the institution.	Condition at time of discharge.	Duration of residential treatment in the institution.															Total patients discharged.	
		Under 28 days.			1-3 months.			3-6 months.			6-12 months.			More than 12 months.				
		M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	No.	%
T.B. (tuberculous).	Quiescent	—	—	—	6	7	—	18	15	1	11	14	6	5	1	6	90	45.2
	Improved	4	1	—	6	7	1	22	9	1	7	15	—	2	6	—	81	40.7
	N.M.I.	6	5	—	1	—	—	1	1	—	—	1	—	—	—	—	15	7.5
	Died	6	2	1	—	3	—	1	—	—	—	—	—	—	—	—	13	6.5
T.B. (plus 1 early).	Quiescent	—	—	—	1	1	—	3	1	—	7	5	—	4	7	1	30	28.3
	Improved	—	1	—	9	1	—	5	6	—	12	11	2	3	5	1	56	52.8
	N.M.I.	3	—	—	2	1	—	1	3	—	2	1	—	—	1	—	14	13.2
	Died	3	—	—	—	1	—	1	1	—	—	—	—	—	—	—	6	5.7
T.B. (plus 2 intermediate).	Quiescent	—	—	—	2	3	—	4	2	—	11	12	—	12	14	2	62	8.7
	Improved	6	3	—	40	13	1	62	35	—	73	53	—	27	42	—	355	49.6
	N.M.I.	16	8	—	22	18	—	23	22	—	16	14	1	8	4	—	152	21.2
	Died	15	13	—	24	18	—	13	14	—	23	10	1	11	5	—	147	20.5
T.B. (plus 3 advanced).	Quiescent	—	—	—	—	—	—	3	—	—	2	1	—	1	2	1	10	5.8
	Improved	1	—	—	7	1	—	6	5	—	3	6	1	5	4	1	40	23.4
	N.M.I.	8	3	—	5	4	—	11	3	—	4	3	—	2	1	—	44	25.7
	Died	16	9	—	13	17	—	6	6	—	2	3	—	2	3	—	77	45.0
Total		84	45	1	138	95	2	180	123	2	173	149	11	82	95	12	1,192	—
Diagnosis on discharge from observation.											Stay under 4 weeks.			Stay over 4 weeks.				
Tuberculous											10	2	—	6	3	2	23	26.4
Non-tuberculous											2	5	2	24	14	13	60	68.9
Doubtful											—	—	—	1	—	1	2	2.3
Died											*1	—	—	—	†1	—	2	2.3

Grand Total ... 1,279

N.M.I.=No material improvement. "Died" comprises deaths in the institution only.

* Cause of death : Carcinoma of lung.

† Cause of death : (a) Cardiac muscle failure, (b) myocarditis, (c) pulmonary abscess.

Table 23 illustrates that better results are achieved when institutional treatment is given before the sputum becomes positive ; further, the more advanced the disease the less satisfactory are the results.

The following Table 24 shows the names of the sanatoria and pulmonary hospitals and the number of patients suffering from pulmonary tuberculosis admitted and discharged during 1938 :—

Institution.	Definite cases.			Observation cases.		
	Admissions.	Discharges.	Deaths.	Admissions.	Discharges.	Deaths.
Aitken Sanatorium, near Bury	61	48	14	2	2	—
Barrowmore Tuberculosis Sanatorium and Settlement, Great Barrow, Chester	81	78	16	10	10	—
Chadderton Pulmonary Hospital, near Oldham	77	54	22	2	1	—
Eastby Sanatorium, near Skipton	9	5	—	3	2	—
Eccleston Hall Sanatorium, St. Helens	13	9	6	—	—	—
Elswick Sanatorium, near Preston	90	77	15	16	14	—
Halifax Sanatorium, Shelf	27	28	2	—	—	—
Heath Charnock Pulmonary Hospital, near Chorley	62	41	21	—	—	—
Hefferston Grange Sanatorium, Weaverham, Cheshire	11	3	3	—	—	—
High Carley Sanatorium, near Ulverston	163	141	13	26	24	1
King Edward VII. Sanatorium, Midhurst, Sussex	2	4	—	—	—	—
Lancaster Pulmonary Hospital	78	52	22	6	7	—
Oubas House Children's Sanatorium, Ulverston	2	8	—	14	14	—
Peel Hall Pulmonary Hospital, Little Hulton	100	89	11	—	—	—
Pemberton Pulmonary Hospital, Wigan	9	6	3	—	—	—
Rufford Pulmonary Hospital, near Ormskirk	95	79	17	—	—	—
Springfield Sanatorium, Rochdale	37	22	13	—	—	—
Westmorland Sanatorium, Meathop, Grange-over-Sands	8	8	—	—	—	—
Wilkinson Sanatorium, near Bolton	15	22	3	—	—	—
Withnell Pulmonary Hospital, near Chorley	78	52	19	7	7	—
Wolstenholme Pulmonary Hospital, Norden, Rochdale	103	73	31	5	4	1
Wrightington Hospital, near Wigan	33	19	9	—	—	—
Other sanatoria and hospitals	37	31	3	—	—	—
Total	1,191	949	243	91	85	2

In each of the five large dispensary areas, there is a sanatorium-hospital in the charge of the consultant tuberculosis officer, an arrangement of the highest importance because patients come to these hospitals from the area administered by the tuberculosis officer, who is, therefore, conversant with the home conditions. Further, it is of great advantage to the tuberculosis officer, because he can himself apply certain forms of treatment and carry out valuable clinical and research work.

A number of patients are also accommodated in pulmonary hospitals belonging to other bodies situated in or near the area. Arrange-

ments have been made (with minor exceptions) for the tuberculosis officers to visit periodically these institutions and confer with the medical superintendents on the following matters :—

1. The question of extension of patients' treatment or their return home, having special regard to the home conditions which are known to the tuberculosis officers.
2. The special consideration of any patient who is not responding to treatment at the institution.
3. The question of the patients' future treatment, including the facilities for treatment at home.
4. Applications from patients for transfer to other institutions, or for their discharge home, and to settle, where possible, any difficulties or complaints by patients.
5. The question of ancillary treatment, *e.g.*, dental.

The foregoing working arrangements have enabled the highly infectious cases with unsatisfactory home conditions to remain at the pulmonary hospitals for long periods for the purpose of isolation.

AFTER-HISTORIES OF ADULT PATIENTS SUFFERING FROM PULMONARY TUBERCULOSIS.

In my report for 1933, the after-histories of adult pulmonary patients who came on the dispensary registers during the years 1920, 1925 and 1930 were recorded. As there will be very little change in the results, the after-histories have not been worked out again this year.

XI.—THE TREATMENT OF NON-PULMONARY TUBERCULOSIS.

IMMEDIATE RESULTS OF INSTITUTIONAL TREATMENT AT GENERAL AND SPECIAL HOSPITALS.

A summary of the condition on discharge of patients treated during 1938 in approved general and special hospitals is given in the following Table 25 :—

Classification on admission to the institution.	Condition at time of discharge.	Duration of residential treatment in the institution.															Total patients discharged.	
		Under 28 days.			1-3 months.			3-6 months.			6-12 months.			More than 12 months.				
		M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	No.	%
Bones and joints.	Quiescent	—	—	—	1	3	3	4	5	5	4	9	9	12	5	37	97	55·11
	Improved	5	2	2	3	5	2	3	3	4	3	2	4	4	4	8	54	30·77
	N.M.I.	1	1	3	2	1	1	2	—	—	—	—	—	2	—	1	14	7·99
	Died	1	—	1	2	1	1	—	—	—	2	1	—	1	—	1	11	6·33
Abdominal.	Quiescent	—	—	1	5	2	7	2	4	11	2	1	1	1	1	—	38	55·11
	Improved	3	2	2	1	3	4	—	1	2	1	—	—	—	—	—	19	27·55
	N.M.I.	1	4	—	1	—	2	—	—	—	—	—	—	—	—	—	8	11·66
	Died	—	—	—	—	2	—	—	—	—	—	—	1	—	—	1	4	5·88
Other organs.	Quiescent	2	—	—	2	1	1	1	3	1	—	1	—	1	—	—	13	18·88
	Improved	8	5	1	8	5	3	3	2	—	2	1	—	1	—	—	39	56·55
	N.M.I.	4	1	—	2	1	—	—	—	—	—	1	—	—	—	—	9	13·00
	Died	2	—	2	2	—	—	1	—	—	—	—	—	1	—	—	8	11·63
Peripheral glands.	Quiescent	5	5	8	1	2	6	1	1	7	—	—	4	—	—	1	41	31·33
	Improved	12	23	35	1	2	6	2	—	—	2	—	—	—	—	—	83	63·44
	N.M.I.	1	2	1	—	—	1	—	—	—	—	—	—	—	—	—	5	3·88
	Died	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	2	1·55
Total		45	45	57	31	29	37	19	19	30	16	16	19	23	10	49	445	—

Diagnosis on discharge from observation.										Stay under 4 weeks.			Stay over 4 weeks.				
Tuberculous										5	1	4	7	2	3	22	40·0
Non-tuberculous										5	1	2	8	2	9	27	49·1
Doubtful										2	1	—	2	—	1	6	10·9

Grand Total 500

N.M.I. = No material improvement. "Died" comprises deaths in the institution only.

The following Table 26 shows the names of the general and special hospitals, and the number of patients suffering from non-pulmonary tuberculosis admitted and discharged during 1938 :—

Institution.	Definite cases.			Observation cases.		
	Ad- missions.	Dis- charges.	Deaths.	Ad- missions.	Dis- charges.	Deaths.
Ashton-under-Lyne District Infirmary ...	6	6	—	1	1	—
Blackburn and East Lancashire Royal Infirmary	11	11	—	—	—	—
Bolton Infirmary	7	7	—	—	—	—
Bury Infirmary	9	9	—	—	—	—
Chorley and District Hospital	2	2	—	—	—	—
Elswick Sanatorium, near Preston	3	3	—	—	—	—
Liverpool Open-air Hospital, Leasowe, Cheshire	21	14	2	4	4	—
Liverpool Royal Infirmary	18	17	—	—	1	—
Liverpool Stanley Hospital	2	2	—	—	—	—
Manchester Royal Infirmary	33	34	—	3	4	—
Manchester and Salford Hospital for Skin Diseases, Manchester	6	7	—	—	—	—
Oubas House Children's Sanatorium, Ulverston	8	3	—	—	—	—
Preston Royal Infirmary	7	7	1	—	—	—
Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry	2	6	—	—	—	—
Royal Albert Edward Infirmary, Wigan	19	19	—	—	—	—
Royal Lancaster Infirmary	6	6	1	3	1	—
Royal Liverpool Children's Hospital—						
Heswall, Cheshire	9	11	1	1	1	—
Myrtle Street, Liverpool	11	10	1	2	2	—
Royal Southern Hospital, Liverpool	2	2	—	—	—	—
Salford Royal Hospital	6	5	—	1	1	—
Southport Infirmary	2	2	—	—	—	—
Warrington Infirmary	16	15	—	—	—	—
Wrightington Hospital, near Wigan	219	210	18	43	39	—
Other general and special hospitals	15	12	1	1	1	—
Total	440	420	25	59	55	—

AFTER-HISTORIES OF PATIENTS SUFFERING FROM NON-PULMONARY TUBERCULOSIS.

For this report I have had tabulated the after-histories of the patients suffering from non-pulmonary tuberculosis who applied for treatment during 1933. All the patients who were diagnosed by the tuberculosis officers as definite cases and taken on the dispensary registers have been included, irrespective of whether they had treatment in special hospitals, general hospitals, at the dispensaries, or remained at home. Their position has been ascertained as at the end of 1938 (*i.e.*, five years later), and the results are contained in the following Table 27 :—

Classification : Part affected.	Adults or children (at time of commenc- ing treat- ment)	Net No. of cases *	Position at the end of 1938 (5 years later)							
			Recovered		Arrested or quiescent		Disease active		Died from tuberculosis	
			No.	%	No.	%	No.	%	No.	%
Bones and joints	Adults	71	22	31.0	27	38.0	9	12.7	13	18.3
	Children	65	25	38.5	23	35.4	13	20.0	4	6.1
Abdominal	Adults	41	22	53.7	6	14.6	3	7.3	10	24.4
	Children	45	30	66.7	7	15.5	—	—	8	17.8
Other organs	Adults	27	14	51.9	4	14.8	5	18.5	4	14.8
	Children	5	1	20.0	—	—	—	—	4	80.0
Peripheral glands	Adults	84	68	80.9	11	13.1	5	5.9	—	—
	Children	170	124	72.9	39	22.9	7	4.1	—	—
Skin	Adults	9	2	22.2	1	11.1	6	66.7	—	—
	Children	6	4	66.7	2	33.3	—	—	—	—
Total	Adults	232	128	55.2	49	21.1	28	12.1	27	11.6
	Children	291	184	63.2	71	24.4	20	6.9	16	5.5

* Net number arrived at after deducting patients left County, untraced, ceased treatment for other than medical reasons, died from other than tuberculosis, and transferred to pulmonary.

It will be seen from Table 27 that 76 per cent. of the adults and 87 per cent. of the children had recovered from their non-pulmonary condition or had arrived at the stage when the disease was arrested or quiescent. It is not always realised that such a large proportion of the non-pulmonary cases respond so well to treatment.

XII.—DISPENSARY AREA No. 1
(including Lancaster Pulmonary Hospital).

Area (estimated population 258,895) embraces Lancaster, Morecambe and Heysham, Garstang Rural (part), Preston Rural, Walton-le-Dale, Chorley, and Horwich districts.

Consultant Tuberculosis Officer DR. G. H. LEIGH.
(Dr. Leigh is also visiting physician to the Lancaster Pulmonary Hospital).

Assistant Tuberculosis Officer DR. F. C. S. BRADBURY.
(Dr. Bradbury is also deputy visiting physician to the Lancaster Pulmonary Hospital).

Dr. Leigh reports as follows :—

During the year every effort has been made to obtain isolation in the home of pulmonary cases considered to be infectious. At the end of December there were only eight such cases not occupying a separate bed; two of these have since been admitted to institutions.

In doubtful cases with negative sputum, and in cases of suspected tuberculous enteritis, either cultural or inoculation tests have had to be employed. Inoculation tests are carried out at the Public Health Laboratory, Manchester, and the cultural tests are done at the Preston Dispensary.

Glandular cases formed the majority of the patients attending the light centres during the year, and these were treated with successful results.

During the year a new x-ray apparatus has been installed at Chorley Dispensary. It is a four-valve set with a rotating anode tube and a special control table, which is so arranged as to prevent automatically the overloading of the tube. Owing to the short exposure required and the fine detail given by the rotating anode tube, very good skiagrams can be produced. This is of special help in the diagnosis of early cases, and in the investigation of difficult cases such as pulmonary abscess or suspected new growth. Dr. Bradbury has himself constructed a tomographic attachment for use with the x-ray apparatus.

To my medical colleague and the dispensary staffs I would express thanks for their help during the year.

LANCASTER PULMONARY HOSPITAL.

Matron MISS L. CLARK (to 31/7/38).

MISS A. PATCHETT (from 1/8/38).

The Lancaster Isolation Hospital, built to replace the Luneside Hospital which was closed in October, 1927, is situated on the northern boundary of the City of Lancaster. Building operations were commenced by the Lancaster and District Joint Hospital Board in July, 1932, and the first tuberculous patient was admitted on the 11th February, 1935.

By agreement between the Lancashire County Council and the Joint Hospital Board, a separate block was provided for patients suffering from pulmonary tuberculosis. It contains a waiting room, duty room, dining-room, scullery-servery, stores, x-ray room, treatment room, staff lavatory, dark room, and dispensary in the centre; three single and six double cubicles accommodating 15 male patients, with recreation room and sanitary annexe on the east side; and three single and six double cubicles accommodating 15 female patients, with recreation room and sanitary annexe on the west side. There are also two double sleeping shelters for male patients and one double shelter for females, making a total accommodation for 36 patients (19 males and 17 females). The Joint Hospital Board are responsible for the maintenance and nursing of the tuberculous patients, the County Council paying to them the cost thereof.

The weekly maintenance charge for 1938-39 was £2 18s. 0d. per patient.

The consultant tuberculosis officer for Dispensary Area No. 1 is the visiting physician, and the assistant tuberculosis officer the deputy.

The x-ray apparatus in the tuberculosis block is, for convenience, also used for the dispensary patients from Lancaster and district.

The average length of stay of patients at the Lancaster Pulmonary Hospital during 1938 was as under :—

Patients discharged	.....	182 days.
Patients who died in the hospital	.....	118 days.
Observation cases discharged	.....	26 days.

Dr. Leigh reports :—

During 1938, 78 patients were admitted, 52 were discharged, and 22 died ; in addition, 6 cases were admitted for observation and diagnosis and 7 were discharged as non-tuberculous.

This year fewer inductions of artificial pneumothorax have been done, as a larger proportion of the cases admitted was found to be unsuitable. Of the 17 attempted, 12 were successful. One of the difficulties has been that, even among the cases that were successful at first, there were some in which only a partial collapse could be produced ; and in other cases the spontaneous rupture of adhesions interfered with the success of the induction. One of the cases in which no air could be introduced was transferred to High Carley Sanatorium and is making good progress after the operation of extra pleural pneumothorax.

The reduction in the number of artificial pneumothorax cases has made it necessary to substitute treatment by gold salts in a greater number of patients ; 33 were treated in this way as against 14 in 1937. The actual number of injections is much higher, but this is partly accounted for by a reduction in the dosage. Instead of the ascending scale being used a dose of 0.2 grammes given intramuscularly has not been exceeded, and thus more doses are required to complete the course.

At the end of December several patients suffered from a troublesome form of sub-acute myalgia. A short wave therapy apparatus was hired from a well-known firm of electro-medical engineers, and the patients received considerable benefit from this form of treatment.

The increase in the number of radiograms taken is due in some measure to tomography, as at least two films are taken in each of the selected cases. The tomograph has been found of special use in the demonstration of cavities in the lung which were not evident in the ordinary skiagrams ; in locating the situation of adhesions ; and in the investigation of difficult cases with negative sputum where tumour of the lung or other non-tuberculous condition is suspected.

The method used for the examination of sputum is by smear and Ziehl-Neelsen stain. Three guinea-pig inoculation tests were done at the Public Health Laboratory, Manchester, and a number of specimens were examined by culture at Preston Dispensary.

As the disease is fairly advanced in the majority of patients admitted, a complete scheme of occupational therapy has not been possible, but many of the patients can do half-an-hour's light work a day and are thus able to make themselves useful in the work of the institution.

For recreation there is a bowling green, and a billiards table which is much in demand on wet days, and recently a dart board has been added. The women have a putting green, and there is a piano in the recreation room. The entertainments consist of whist drives and the exhibition of cinematograph films. During the summer the members of the Nashy Old Boys' Bowling Club visited the hospital and organised a tournament in which some of the patients were able to take part.

The Christmas festivities were, as usual, a complete success. Special arrangements were made by the County Tuberculosis Committee, and the patients who were able showed their appreciation not merely by enjoying themselves but by doing all they could to help in the entertainment and to make the occasion a happy one for those who were less fortunate.

We have to thank the Vicar, the Rev. H. Moss and his colleagues, the Rev. F. F. Pepper and his colleagues of the Free Church Council, and the Roman Catholic clergy for their ministerial help and kindness to the patients.

The probationer nurses of the hospital receive training in fever nursing organised by the Royal College of Nursing, of which a short training in tuberculosis forms a part. A series of lectures on this subject has been given.

I would express thanks to Dr. Chapman, the recently retired medical officer of the Joint Board, for his generous co-operation, and to Dr. Bradbury, the matron, and the nursing staff, for their efficient services during the year.

Details of work carried out at Lancaster Hospital during 1938 :—

Artificial pneumothorax—	
Inductions	18
Refills	469
Aspirations and pleural wash-outs	14
Gold salts—	
Solganal injections	578
Insulin injections	464
Blood sedimentation tests (Cutler method).....	97
X-ray work—	
Screen examinations	488
Skiagrams	424
Sputum examinations (positive 86, negative 85)	171
Guinea-pig inoculations	3
Wassermann tests	1

Numbers of patients afforded special treatment in the hospital for the first time during 1938 :—

Artificial pneumothorax—	
Attempted	17
Satisfactory	12
Unsatisfactory	5
Gold salts (solganal)	33
Air-tight drainage	4

Numbers of patients in the hospital on the 31st December, 1938,
who were having special treatment :—

Artificial pneumothorax	1
Artificial pneumothorax and gold salts	5
Gold salts (solganal)	4

SUMMARY OF DISPENSARY WORK.

Number of cases under supervision on 31st December, 1938
(Definitely tuberculous, 923 ; doubtful, 11) 934

	Examinations of <i>new persons</i> and <i>new contacts</i> for diagnosis.	Re-visits or re-attendances of " <i>old</i> " cases and " <i>old</i> " <i>contacts</i> .	
Examinations by tuberculosis officers at—			
Patients' homes	158	745	
Lancaster Chief Dispensary	189	695	
Chorley Branch Dispensary	187	1,017	
Preston Branch Dispensary	96	545	
	472	2,257	
Attendances of patients at dispensaries for artificial light treatment—			
Lancaster Dispensary (36 patients)		765	3,009
Chorley Dispensary (42 patients)		1,124	
Preston Dispensary (36 patients)		1,120	
Attendances for artificial pneumothorax treatment (25 patients)			386
Blood sedimentation tests (Cutler method)			6
Hamburger tests			33
Vollmer tests			13
Care committee meetings attended by—			
(a) Tuberculosis officers			9
(b) Tuberculosis health visitors			35
Lectures or addresses given			3
Visits by tuberculosis officers to sanatoria, and pulmonary and special hos- pitals			17
Special visits by tuberculosis officers (<i>i.e.</i> , interviews with medical officers of health, general hospital officials, &c.)			7
Visits by dispensary nurses to patients' homes—			
Routine visits.....		3,675	3,989
Application of surgical dressings		314	
Patients' dispensary attendances for attention by nurses—			
Application of surgical dressings			316
Sanitary defects reported to the local medical officers of health			5
Sanitary defects which after notification were remedied			1
Disinfections carried out by local sanitary authorities			184
Percentage of new cases referred by medical practitioners, &c., to tuberculosis officers for an opinion as to diagnosis or treatment <i>before</i> statutory notification			95%

XIII.—DISPENSARY AREA No. 2 (including Withnell Pulmonary Hospital).

Area (estimated population 319,084) embraces Clitheroe, Colne, Nelson, Burnley Rural, Blackburn Rural, Accrington, Darwen, Haslingden, Rawtenstall, and Bacup districts.

Consultant Tuberculosis Officer DR. B. MACPHEE.
(Dr. MacPhee is also visiting medical superintendent of the Withnell Pulmonary Hospital).

Assistant Tuberculosis Officers DR. S. C. ADAM.
DR. D. O. HUGHES (2 days per week).

Dr. MacPhee reports :—

During 1938 the chief dispensary in Accrington was visited by the following :—Dr. S. H. Paul, Assistant Director of Public Health, Assam, India ; Dr. Bruce Hunt, Consulting Physician to the Repatriation Committee in Western Australia ; and County Councillor R. Shorrocks. On the 21st September, 1938, the County Tuberculosis Committee held their monthly meeting at the dispensary.

During the year, no notable change was made in the routine work of the dispensaries. Continued effort was made to induce as many contacts as possible to attend for x-ray examination ; in 1938, 234 contacts were examined, compared with 200 in 1937. The attendance of contacts at the dispensary is only accomplished by much persuasion and perseverance on the part of both the medical and the nursing staffs.

In the x-ray department, 1,303 skiagrams were taken (including 14 for County patients in Eastby Sanatorium), and 538 screenings made. In addition, 5 skiagrams were taken and 23 screenings made at the Withnell Pulmonary Hospital in respect of dispensary patients who, for convenience, attended the hospital as out-patients.

In the chief dispensary laboratory, 1,101 specimens of sputum were examined with the following results: Positive 179, negative 922.

In order to assist in the diagnosis of doubtful cases, 48 pathological specimens were submitted to the Public Health Laboratory in Manchester, 14 of which were reported as positive to tubercle bacilli and 34 negative.

Once again the County care fund has proved a useful adjunct in the treatment of tuberculosis, 84 patients receiving assistance from this source at an approximate cost of £294. In this connection I should like to express my appreciation of the willing help given to necessitous patients by the Public Assistance Department and the Unemployment Assistance Board.

I have pleasure in recording the willing assistance given at all times by the officers of the various local authorities and by the Lancashire County school medical officers, and the increasing enthusiasm and co-operation of the general practitioners. I would express my grateful appreciation of the willing and helpful co-operation of my medical colleagues, and the nursing and clerical staffs during the year.

WITHNELL PULMONARY HOSPITAL, NEAR CHORLEY.

Matron MISS D. WILLMAN.

The County Council in December, 1924, purchased Withnell Hall (including two cottages, outbuildings, and 37 acres of land) situated on the main road from Blackburn to Chorley. The first patient was admitted on the 15th August, 1927. Accommodation is provided for 52 male patients (20 in double cubicles, 6 in single cubicles, 18 in four wards and 8 in wooden cubicles); by arrangement, not exceeding five beds are rented by the Burnley Corporation. There is a small treatment block in which artificial pneumothorax inductions and refills and minor operations are carried out. The hospital serves mainly Dispensary Area No. 2. There are three houses on the estate for male employees.

The weekly maintenance charge for 1937-38 was £2 19s. 10d. per patient, which includes 12s. 2d. for loan charges.

The average length of stay of patients at Withnell during 1938 was as under :—

Patients discharged	.....	.....	.....	.....	185 days.
Patients who died in the hospital	.....	.....	.....	.....	116 days.
Observation cases discharged	.....	.....	.....	.....	38 days.

Dr. MacPhee reports :—

During the year, 78 patients were admitted to the institution, 52 were discharged, and 19 died; in addition, 7 cases were sent in for observation and diagnosis, and 7 were discharged (2 of which were diagnosed as tuberculous). The percentage of beds occupied during the year was 97·6.

The hospital was honoured by visits from the following :—County Councillor E. Clegg ; Dr. S. H. Paul, Assistant Director of Public Health, Assam, India ; Dr. Bruce Hunt, Perth, Western Australia ; The County Tuberculosis Committee ; County Councillor R. Shorrocks ; A. Beal, Esq., County Treasurer.

Lectures were given to the nurses by Dr. Hughes and myself. One nurse gained the certificate of the Tuberculosis Association and one nurse passed in Part I. of the Association's examination.

The hospital was visited by the dentist, Mr. Heggarty, when occasion required.

The building of a new nurses' home to accommodate extra staff in order to bring their working and social conditions more in keeping with modern ideas is under consideration.

We are indebted to many kind friends for concerts and other entertainments given to the patients ; and to a representative cast from the County Offices, the dispensary at Accrington, and our own staff, for a very successful comedy entitled " The Luck of the Draw." This play was repeated at the Wolstenholme, Rufford, and Wrightington Hospitals. Great credit is also due to the patients who gave a delightful concert at Christmas.

Our appreciation and thanks are also given to those who ministered to the spiritual needs of the patients and staff, and to the County Tuberculosis Committee for their continued interest in the welfare of the hospital.

Lastly, I gladly express my thanks to my colleagues, the matron, and the members of the staff for their much appreciated assistance at all times.

Details of work carried out at Withnell during 1938 :—

Artificial pneumothorax—		
Inductions	.....	8
Refills	.....	125
Gas replacements	.....	4
Gold salts—		
Solganal injections	.....	20
Aspirations	.....	7
Blood sedimentation tests (Cutler method)	.....	11
Mantoux tests	.....	1
Lipiodol injections	.....	1
X-ray work—		
Screen examinations	.....	226
Skiagrams	.....	230
Sputum examinations (positive 160, negative 140)	.....	300

Numbers of patients in Withnell afforded special treatment for the first time during 1938 :—

Artificial pneumothorax—	
Attempted	8
Satisfactory	4
Unsatisfactory	4
Gold salts (solganal)	1
Collison's inhalation treatment	8

On the 31st December, 1938, three patients were having special treatment (namely, artificial pneumothorax).

SUMMARY OF DISPENSARY WORK.

Number of cases under supervision on 31st December, 1938

(Definitely tuberculous, 1,064; doubtful, 3) 1,067

	Examinations of <i>new persons</i> and <i>new contacts</i> for diagnosis.	Re-visits or re-attendances of " <i>old</i> " cases and " <i>old</i> " contacts.
Examinations by tuberculosis officers at—		
Patients' homes	152	197
Accrington Chief Dispensary	423	1,082
Darwen Branch Dispensary	79	176
Nelson Branch Dispensary	283	571
Stacksteads Branch Dispensary	206	501
	991	2,330

Attendances of patients at dispensaries for artificial light treatment—

Accrington Dispensary (51 patients)	2,099	} 5,405
Nelson Dispensary (42 patients)	1,413	
Stacksteads Dispensary (40 patients)	1,893	

Attendances for artificial pneumothorax treatment (21 patients) 285

Attendances for tuberculin treatment 160

Mantoux tests 6

Lectures or addresses given 2

Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals 47

Special visits by tuberculosis officers (*i.e.*, interviews with medical officers of health, general hospital officials, &c.) 8

Visits by dispensary nurses to patients' homes—

Routine visits	7,502	} 8,312
Application of surgical dressings	273	
Adjustment of splints and surgical appliances	230	
Other actual nursing	307	

Patients' dispensary attendances for attention by nurses—

Application of surgical dressings	1,129	} 1,245
Adjustment of splints and surgical appliances	116	

Sanitary defects reported to the local medical officers of health 21

Sanitary defects which after notification were remedied 21

Disinfections carried out by local sanitary authorities 280

Percentage of new cases referred by medical practitioners, &c., to tuberculosis officers for an opinion as to diagnosis or treatment *before* statutory notification 97%

XIV.—DISPENSARY AREA No. 3 (including Wolstenholme Pulmonary Hospital).

Area (estimated population 384,058) embraces Ramsbottom, Littleborough, Radcliffe, Heywood, Crompton, Royton, Prestwich, Middleton, Chadderton, Failsworth, Droylsden, Ashton-under-Lyne, Mossley, and Denton districts.

<i>Consultant Tuberculosis Officer</i>	DR. G. FLETCHER.
(Dr. Fletcher is also visiting medical superintendent of the Wolstenholme Pulmonary Hospital).	

<i>Assistant Tuberculosis Officers</i>	DR. J. L. ARMOUR. DR. W. FETTES.
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Dr. Fletcher reports :—

The most notable event in this area during 1938 was the removal from the old dispensary in Warrington Street to the new dispensary in Lees Street. This change has been much appreciated by both patients and staff, as the new building leaves nothing to be desired in the way of accommodation and convenience.

In February, there was a Health Week at Middleton, where meetings were addressed by the three members of the medical staff in this area.

Nurses Flynn and Swift attended a refresher course at London, and found it interesting and helpful.

On the 18th May the County Tuberculosis Committee inspected the Ashton-under-Lyne Dispensary then in process of completion, and also visited the Chadderton Dispensary and the Wolstenholme Pulmonary Hospital.

During October, County Councillors E. Clegg and J. Kershaw visited Ashton-under-Lyne, Radcliffe, Rochdale and Chadderton Dispensaries, and Chadderton and Wolstenholme Pulmonary Hospitals.

Under the auspices of the National Association for the Prevention of Tuberculosis, a series of lectures was delivered in October by Dr. Harley Williams at Chadderton, Heywood, Radcliffe and Droylsden. In each district the chair was taken at the evening meeting by a member of the County Council, and the lectures were appreciated by the audience.

The Ashton-under-Lyne and District Tuberculosis Care Committee during the course of the year assisted 65 cases at a cost of £186 5s. 9d. In May, the Committee (29 in all) paid a visit to the Wrightington Hospital, where Dr. Pask kindly showed us round the institution and explained its working arrangements. The annual dance held in the Town Hall in November realized the sum of £22 10s. 6d. for the funds.

The Radcliffe, Whitefield and District Relief Fund for Consumptives, and the Prestwich Care Committee dealt with necessitous cases in their respective areas.

In those districts of the area where no voluntary care committee is in operation, the County care fund assisted 69 cases at a cost of £221 13s. 11d.

The annual Christmas Party given to the children at Ashton-under-Lyne was held in the new dispensary and was greatly enjoyed by all concerned.

During the year, 2,003 skiagrams were taken at Ashton-under-Lyne Dispensary, as compared with 1,883 in 1937. At this dispensary also, 1,326 specimens of sputum were examined, 351 being positive and 975 negative.

The light centres at Ashton-under-Lyne and Radcliffe continued to operate as in former years. Observation visits were paid to these dispensaries by 79 cases which had been successfully treated by artificial light.

Monthly visits were paid to Aitken and Springfield Sanatoria and Chadderton Pulmonary Hospital, and consultations held with the medical superintendents.

As in former years the co-operation of the medical practitioners in this area has been much appreciated, and I have also to thank the members of my staff for the help they have given me throughout the year.

WOLSTENHOLME PULMONARY HOSPITAL, NORDEN.

Matron MISS E. G. GLASS.

The County Council, on the 1st July, 1933, took over from the Rochdale Corporation, Wolstenholme Hall, Norden, which had been used by them as a pulmonary hospital for 45 adult male patients of whom 25 to 30 were sent by the County Council. The estate is situated

on the Edenfield road, $3\frac{1}{2}$ miles west of Rochdale, and contains $7\frac{1}{4}$ acres of land with two cottages and outbuildings. The County Council have erected entirely new buildings for the treatment of 55 male patients accommodated as under :—8 in single cubicles, 20 in double cubicles, 23 in five wards, and 4 in double sleeping shelters. The new buildings contain an x-ray room, dark room, laboratory, operating theatre, sterilising room, dining room, servery, two nurses' duty rooms, two linen stores, patients' locker rooms, sluice rooms, and lavatory accommodation. A recreation room, reading room, and dressing rooms have been provided in a separate building. The Hall has been adapted for housing the nursing and domestic staffs and for other administrative purposes.

The weekly maintenance charge for 1937-38 was £2 12s. 2d. per patient, which includes 9s. 7d. for loan charges.

Of the 55 beds, the County Council have undertaken to lease to the Rochdale Corporation 25 beds.

The average length of stay of patients at Wolstenholme during 1938 was :—

Patients discharged	.....	142 days.
Patients who died in the hospital	.....	92 days.
Observation cases discharged	.....	47 days.
Observation case which died in the hospital	.....	15 days.

A motor ambulance is available at the hospital.

Dr. Fletcher reports as follows :—

During the year, 103 County patients were admitted, 71 were discharged, 2 were transferred to other institutions, and 31 died ; in addition, 5 observation cases were admitted, 2 were accepted as tuberculous, 2 were discharged as non-tuberculous, and 1 died of other than tuberculosis.

During the year, County Councillors Canon A. Kershaw, H. Bright, E. Clegg, and J. Kershaw visited the institution as representing the County Tuberculosis Committee. One visit was also made by County Councillors J. H. Cryer and R. H. Schofield.

As in former years, the members of the Rochdale Health Committee with their medical officer of health made quarterly visits,

In preparation for the examination for the certificate of the Tuberculosis Association, lectures on anatomy and physiology were given to the junior nurses, and on tuberculosis to the senior nurses. Nurse D. H. Newton obtained this certificate in May.

Such patients as are fit for light work assist in the running of the institution, while the fittest are allowed to help in the workshop or the garden.

The library continues to be a much appreciated feature in the life of the institution ; we are grateful for presents of books from various friends and for the grant made by the County Tuberculosis Committee towards the upkeep of the library.

The Rev. Mr. Patrick, the Rev. Mr. Morton, and Father O'Sullivan made regular visits and attended to the religious needs of the patients.

The dentist, Mr. C. Fearn, treated such patients as were in need of dental attention.

During the year the patients' social club continued its useful work. Many entertainments were provided and were much appreciated. To the club also we are indebted for the gift of an electric clock for the recreation room.

Several visits were paid to the institution by members of the Rochdale Toc H, and monthly visits were made by the members of the St. Paul's Church Bible Class.

Friends from outside the institution provided many concerts and dramatic entertainments, and these greatly helped to make the patients' stay in the institution more pleasant. We are also grateful to the County Tuberculosis Committee for the grant made towards the provision of concerts and films.

The annual garden party proved a successful event, and during the year the patients had two happy outings to Southport and Blackpool.

To the matron and staff I must express my thanks for their continued assistance throughout the year.

Details of work carried out at Wolstenholme during 1938 :—

Artificial pneumothorax—	
Inductions	11
Refills	96
Gold salts—	
Sanocrysin injections	74
Ionisations of throat	440
Aspirations of chest	4
Wash-out of chest	2
Dry cupping	3
Mantoux tests	6
Blood sedimentation tests (Cutler method)	142
Blood sugar tests	2
Wassermann tests	2
X-ray work—	
Screen examinations	196
Skiagrams	238
Sputum examinations (positive 221, negative 142)	363

Numbers of patients afforded special treatment in the hospital for the first time during 1938 :—

Artificial pneumothorax—	
Attempted	11
Satisfactory	7
Unsatisfactory	4
Gold salts (sanocrysin)	10
Ionisation	5

Numbers of patients in the hospital on the 31st December, 1938, who were having special treatment :—

Artificial pneumothorax	2
Gold salts (sanocrysin)	1
Ionisation	1

SUMMARY OF DISPENSARY WORK.

Number of cases under supervision on 31st December, 1938
(Definitely tuberculous, 1,559 ; doubtful, 2) 1,561

Examinations by tuberculosis officers at—	Examinations of new persons and new contacts for diagnosis.	Re-visits or re-attendances of "old" cases and "old" contacts.
Patients' homes	182	325
*Ashton-under-Lyne Chief Dispensary	464	2,676
Chadderton Branch Dispensary	273	1,105
† Middleton Branch Dispensary	42	332
Radcliffe Branch Dispensary	219	696
Rochdale Branch Dispensary	169	546
	<u>1,167</u>	<u>5,355</u>

* New premises in Lees Street, Ashton-under-Lyne occupied 24th October, 1938.

† Closed 31st January, 1939.

Attendances of patients at dispensaries for artificial light treatment—				
Ashton-under-Lyne Dispensary (108 patients)	3,466	}	5,237	
Radcliffe Dispensary (36 patients)	1,771			
Attendances for artificial pneumothorax treatment (52 patients)				672
Attendances for moogrol (hydnocarpates) treatment				98
Care committee meetings attended by—				
(a) Tuberculosis officers				11
(b) Tuberculosis health visitors				8
Lectures or addresses given				9
Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals				81
Special visits by tuberculosis officers (<i>i.e.</i> , interviews with medical officers of health, general hospital officials, &c.)				1
Visits by dispensary nurses to patients' homes—				
Routine visits.....	7,345	}	8,351	
Application of surgical dressings	263			
Adjustment of splints and surgical appliances	392			
Other actual nursing.....	351			
Patients' dispensary attendances for attention by nurses—				
Application of surgical dressings	160	}	263	
Adjustment of splints and surgical appliances	103			
Sanitary defects reported to the local medical officers of health				38
Sanitary defects which after notification were remedied				15
Disinfections carried out by local sanitary authorities				328
Percentage of new cases referred by medical practitioners, &c., to tuberculosis officers for an opinion as to diagnosis or treatment <i>before</i> statutory notification				
				90%

XV.—DISPENSARY AREA No. 4

(including Peel Hall Pulmonary Hospital).

Area (estimated population 371,926) embraces Westhoughton, Atherton, Farnworth, Leigh, Swinton and Pendlebury, Eccles, and Stretford districts.

Consultant Tuberculosis Officer DR. G. JESSEL.
(Dr. Jessel is also visiting medical superintendent of the Peel Hall Pulmonary Hospital).

Assistant Tuberculosis Officers DR. A. B. JAMIESON.
DR. H. J. VILLIERS.

Dr. Jessel reports :—

The figures at the end of this chapter give some indication of the scope and extent of the various dispensary activities. Broadly speaking, they are concerned with diagnosis, treatment, the search for hitherto unknown cases, practical assistance—not strictly medical—to patients and their families, and the education of the public in preventive measures. I wish to draw attention to the large number of home visits paid by the tuberculosis medical staff. These visits are necessary and important. They are necessary because many patients are unfit to leave their homes or even to leave their beds. They are important as affording an opportunity of gaining first-hand knowledge of the actual circumstances in which patients are living. As a result of the information and insight thus acquired, suitable remedial measures can be undertaken more readily than would otherwise be possible. All the various dispensary activities have been continued, as in previous years, with no slackening of effort.

Our relationship with the local medical practitioners continues to be cordial. It is now well-known that full provision for the diagnosis of difficult cases is made through the dispensary organisation, and the receipt by doctors of reduced prints of interesting skiagrams is appreciated. The provision made for institutional and special treatment of definite cases of tuberculosis is an additional reason for referring suspicious patients to the tuberculosis officer.

Another pleasing feature is the changed attitude of the public of recent years towards the dispensaries. There are some few who need persuasion to attend, but, generally speaking, the value of a special

examination, which may rule out tuberculosis, is becoming more and more recognised. Moreover, whereas at one time patients on diagnosis were apt to decline or to accept with reluctance the invitation to receive institutional treatment, this is now in my personal experience exceptional. In this connection, it may be mentioned that of 335 definite cases of tuberculosis reported in this area, only one (excluding three who were able to provide private treatment) declined to avail himself of the provision made under the County scheme. I find that nearly all patients, on diagnosis, accept the facts as presented to them, and remain in bed when instructed to do so until their time comes for admission to hospital.

Mantoux tests have been carried out as far as possible by Dr. Jamieson and Dr. Villiers in connection with children; 211 tests were done, and of these 75, or 35 per cent., were negative. The method adopted is to start with a dilution of 1/1,000 and, if this is negative, to repeat the test in a dilution of 1/100. If this is negative also, in the absence of (1) acute illness with fever, (2) convalescence from an infectious disease, *e.g.*, measles, and (3) advanced tuberculosis, it is considered that there is no tuberculous infection. The value of the test depends on the negative findings, and the number of these is significant. In many cases, where a diagnosis of tuberculosis has been made or suspected elsewhere, we have been able to show the absence of infection, and thereby a good deal of public money has been saved, apart from the disadvantage to the patient of being treated for a non-existent tuberculosis. The following is a case in point :—

J.C., male, aged 5 years, was referred by a doctor to the local infirmary where an x-ray report stated : “An area of infiltration shows in the left sub-apical region, suggesting active P.T. Some calcified nodules present in both root shadows.” The case was then referred to me and, as the Mantoux test was negative in a dilution of 1/100, it was accordingly decided that there was no evidence of tuberculous infection.

During the past few years, a number of such cases have occurred. We have never had a case regarded as non-tuberculous under such conditions subsequently brought to our notice and found to be suffering from tuberculosis.

Contact examination is important, but can only be undertaken within limits. It is easy to examine large numbers of obviously non-tuberculous young children, but much more difficult to examine adolescents and adults who think they are in good health. Sometimes it is possible to trace the source of infection of a known case, *e.g.*, in tuberculous meningitis. In the annual report for 1933, I gave particulars of a case where the source of infection was the milk supply. More commonly in such cases the source of infection is human and usually a

resident in the household. One difficulty with contact examination is that a negative result at a given date is no guarantee against the future manifestation of active disease from a latent tuberculosis. See skiagrams E.1(a) and 1(b). Contact examination to discover the source of infection of a previous case is no less important than the attempt to discover early cases. For example, a middle-aged or elderly person, who has been a source of infection of a younger member of the family, may enjoy fairly good health for many years and on this account be unwilling for examination until a breakdown occurs (see skiagram E.2). Skiagram E.3 is that of a mother who was examined as a contact, and shows that the disease may become cured and the person remain in good health. Notice in the skiagram the small white spots at the top of the right lung (calcified nodules) which are evidence of healed disease.

As in previous years, some interesting cases are recorded with illustrative skiagrams. It is, of course, well-known that far more non-tuberculous persons than tuberculous are seen at or in connection with dispensaries. The differentiation of the various conditions met with is an interesting and important part of our work, and of no less interest to the patients' medical attendants, who are given the benefit of such conclusions as are reached after investigation (see skiagrams E.4(a) to E.12).

Visits were paid to this area during 1938 by Dr. Philip Tsu-Yan Ch'iu, late Assistant in the Department of Public Health and Hygiene, Peiping, and by Dr. Ali Rahman Soliman and Dr. Ali Azmy, Tuberculosis Officers of the Egyptian Government.

During the year, I was privileged to read the opening paper at the Tuberculosis Section of the British Medical Association Conference held at Plymouth, and to hold the position of President of the North-Western Tuberculosis Society for a second year. The subjects of my papers and particulars of the publications are as under :—

Skiagraphy of the Chest.—Opening paper read at the Tuberculosis Section of the British Medical Association Conference, Plymouth. *British Medical Journal*, 6th August, 1938, Vol. II, p.276.

Serial Skiagraphy in Pulmonary Disease.—Presidential Address to the North-Western Tuberculosis Society, October, 1938. *Tubercle*, November, 1938, p.72.

In conclusion, I wish to record my appreciation of the encouragement I have received from the Central Tuberculosis Officer, and of the help I have received from the central office and the various members of the dispensary staff,

DELAYED MANIFESTATION OF TUBERCULOUS INFECTION IN A CONTACT.



E.1(a).—F.B., female, aged 21. First examined by T.O. 20-7-37 at request of panel doctor. Father had tubercle bacilli in sputum. Patient had no cough or sputum and complained only of lassitude and sickness. Skiagram taken 20-7-37 was entirely negative for tuberculosis.



E.1(b).—Same patient. Attended dispensary again on 6-6-39 (nearly 2 years later) as a "contact." Complained of lassitude, sickness and headache. Said to have had an influenzal attack one week earlier. No cough or sputum. Skiagram taken 6-6-39 shows tuberculous disease in left upper and middle zones.

(Skiagrams taken at Eccles Dispensary).

RIGHT.

LEFT.

UNSUSPECTED OLD TUBERCULOSIS DETECTED SEVEN YEARS AFTER
DEATH OF SON.



E.2.—H.T., female, aged 67. First examined by T.O., Aug. 1938. Previous health good. Never had much medical treatment. Complained of dry cough, dyspnoea and pain in left side. No sputum. Clinically, the percussion note at left base was dull, breath sounds and tactile vocal fremitus absent. Skiagram taken 1-9-38 shows slight basal pleurisy on left side, with some fibrosis above. Also old standing tuberculosis left apex and right upper zone. Patient died 20-9-38. Interesting to note that a son died from tuberculosis (T.B. plus) in 1931.

VALUE OF CONTACT EXAMINATION OF ADULTS.



E.3.—A.F., female, aged 56. Skiagram taken 27-9-38 shows calcified nodules right upper zone. Heart deviated to right. Two daughters died from pulmonary tuberculosis, and had tubercle bacilli in the sputum. The mother, apparently, was the source of infection.

(Skiagrams taken at Eccles Dispensary).

RIGHT.

LEFT.



E.4(a).—F.S., male, aged 39. First examined by T.O., May, 1929. Tubercle bacilli in sputum. Skiagram taken 4-6-29 shows extensive mottling in upper parts of both lungs.



E.4(b).—Same patient. Skiagram taken 4-10-38, 9 years later, shows marked improvement compared with original skiagram, both lungs showing minute calcification and slight fibrosis. Patient had 10 months' ordinary sanatorium treatment, now well and working, no sputum, gained 18½ lbs. in weight. Blood sedimentation rate is only 3 (Westergren-1 hour).

(Skiagrams taken at Eccles Dispensary).

RIGHT.

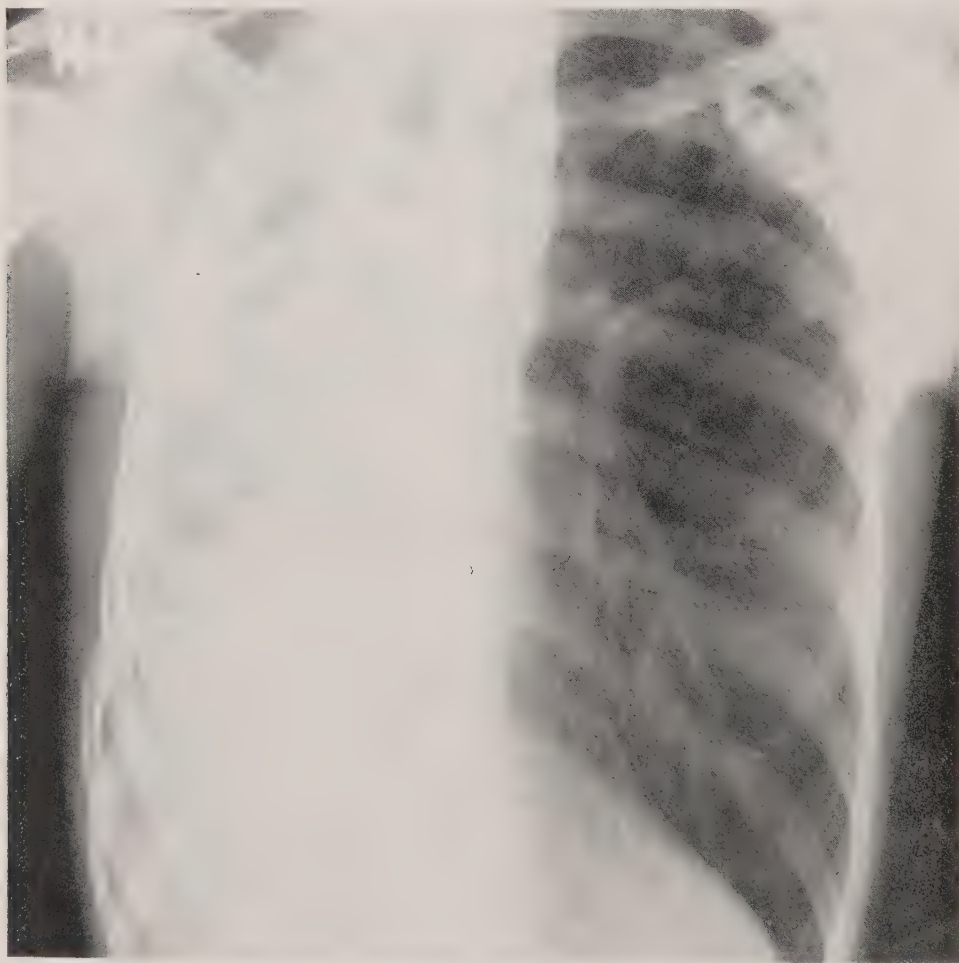
LEFT.

SINGLE CAVITY WITH FLUID LEVEL.



E.5.—T.B., female, aged 19. Seen by T.O. Jan. 1939. History of bronchitis each winter. One sister died from tuberculosis 2 years ago. Patient's present illness only 2 weeks' duration, thought to have influenza, but had cough with sputum for some months. Other symptoms : Loss of weight and lassitude. Had no sputum when examined in January. Skiagram taken 10-1-39 shows a small cavity with fluid level in right middle zone ; rest of lungs apparently unaffected. Comment : Case illustrates value of x-ray examination, though tuberculosis might be suspected from history, often difficult to elicit.

IMPORTANCE OF SPUTUM EXAMINATION.



E.6.—L.R., female, aged 27. Seen by T.O. Dec. 1938 ; patient in bed with illness of 4 months' duration, thought to be unresolved pneumonia. On clinical examination, heart was deviated to right ; physical signs (right side) were diminished movement, impaired percussion with weak breath sounds, crepitations and rales. Thin and weak, but said to be afebrile. History of chronic cough on and off for years, worse in winter ; no history of any definite illness requiring treatment. Skiagram taken 15-12-38 shows right side to be more or less opaque and diminished in size, with heart deviated to right. Comment : From skiagram diagnosis of fibrosis could be made ; but for presence of minute spots on left side might have been due to pneumonia. Tuberculosis definitely established when sputum positive twice. Sputum examination is still one of our most important means of diagnosis and should never be neglected in cases of chronic cough.

RIGHT.

(Skiagrams taken at Eccles Dispensary).

LEFT.

ACCESSORY AZYGOS LOBE.



E.7.—L.A., female, aged 23. Referred to T.O. July 1939. Onset of present illness about 9 weeks ago, said she had a "chill." Cough each winter. Said to have had pneumonia twice—last time about 9 years ago. Physical signs, right lung: Poor air entry, percussion note dull lower lobe, no breath sounds, very occasional dry adventitious sounds at base. V.R. Sputum negative. Skiagram taken 6-7-39 shows no evidence of tuberculosis. Inner aspect of right apex shows a fine linear opacity, convex outwards and descending to below clavicle and having thickened end. This may well be an accessory Azygos lobe.

ABSCCESS OF LUNG.



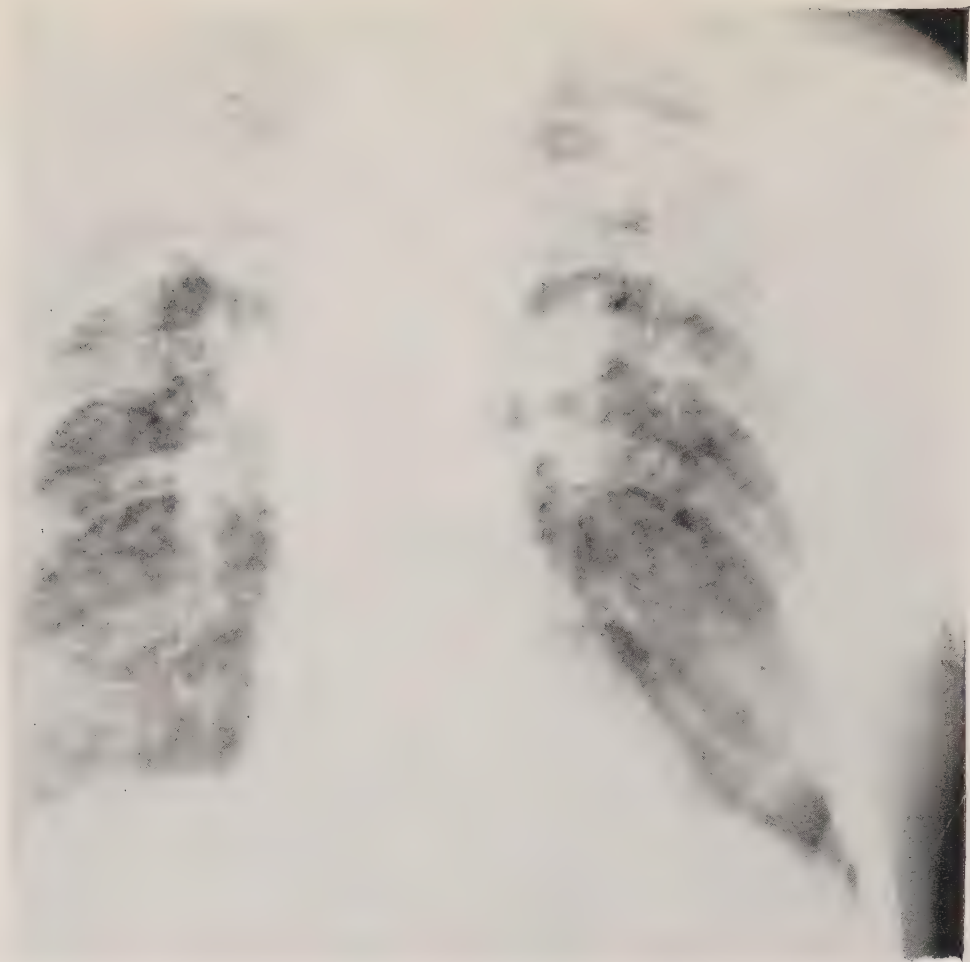
E.8.—M.F., female, aged 57. First seen by T.O. 8-6-39. No history of serious illness. Chronic cough since childhood. Clinically, there were rhonchi over right base. Sputum muco-purulent and negative (3 specimens). Skiagram taken 16-6-39 shows what appears to be an abscess of lung with a fluid level. Patient admitted to Park Hospital on 26-6-39, and after postural drainage coughed up large quantity of pus—on first day 12 oz. between 8 a.m. and 3 p.m.

(Skiagrams taken at Eccles Dispensary).

RIGHT.

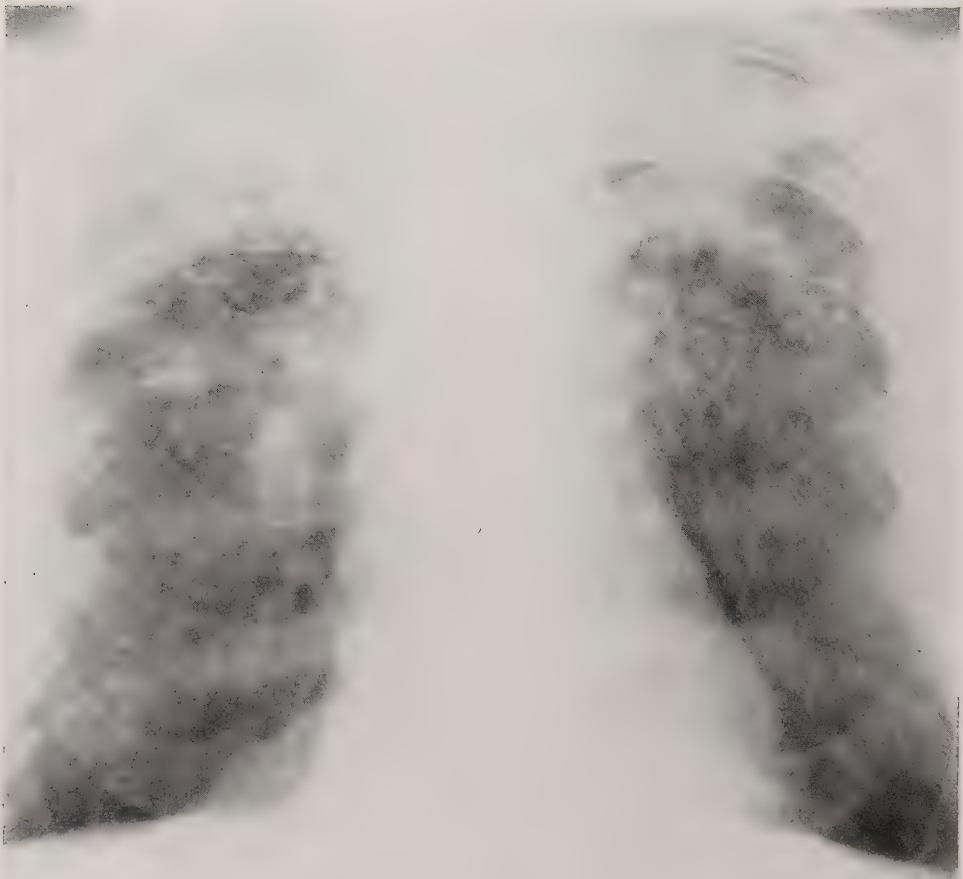
LEFT.

SILICOSIS IN A STONEMASON.



E.9.—O.C., stonemason, aged 61. First examined by T.O. 1930; again in 1931 when diagnosis of silicosis was made. Skiagram taken 11-10-38 shows extensive silicotic mottling in both lungs.

SILICO-TUBERCULOSIS.



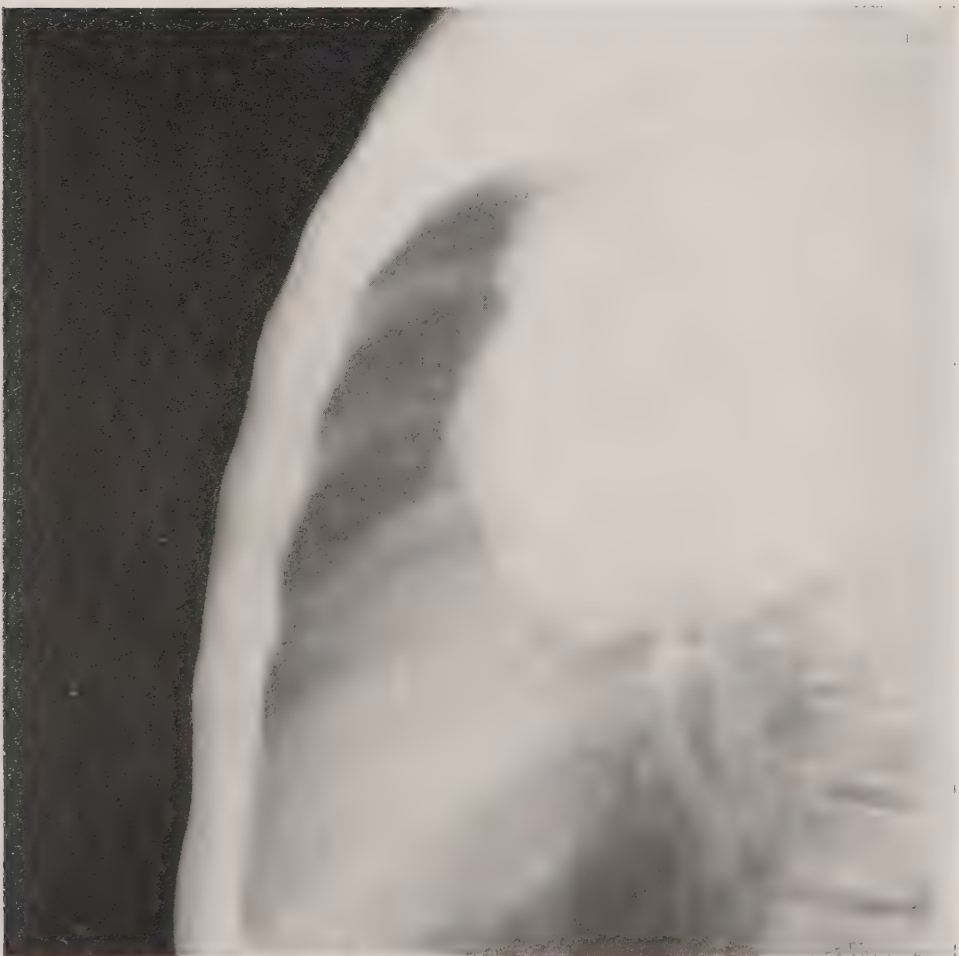
E.10.—J.G.E., colliery fireman, aged 55. Examined by T.O. Feb. 1936. Complained of dyspnoea for about 6 months and feeling of exhaustion for past 3 weeks. Examined at dispensary in 1917 after attack of pneumonia, nil definite found, patient remained well since then. A daughter, aged 19, died from tuberculosis in 1927. Skiagram taken 3-3-36 shows a good deal of scattered mottling in upper two-thirds of both lungs with what appears to be small cavities. Sputum negative (3 specimens). Regarded as a case of tuberculosis with probably some silicosis. In April, 1939, patient collapsed in street and died; post-mortem examination revealed cause of death as asphyxia due to silicosis of lungs, slightly accelerated by tuberculosis of right lung. (Skiagrams taken at Eccles Dispensary).

RIGHT.

LEFT.



E.11(a).—A.H., spinner, aged 37. First examined by T.O., April 1939. Said to have had pleurisy about 4 years ago. Present illness commenced about 4 months ago. Complained of slight cough, sputum, lassitude, and shortness of breath. Recent pain in left side. Left chest was dull on percussion. Sputum negative (3 specimens). Skiagram taken 2-5-39 shows in upper half of left lung a globular opacity, extending to lateral margin of chest, but not above clavicle.



E.11(b).—Same patient. Skiagram (lateral view) taken 2-5-39 shows opacity to be posterior and lying above heart shadow. Patient admitted to Park Hospital, where bronchoscopic examination was made. Diagnosis: ? Dermoid cyst. Operation 28-6-39: Swelling size of coconut was found on surface, but owing to patient's condition it was not considered advisable to proceed further. Subsequently an extensive pleural effusion developed.

(Skiagrams taken at Eccles Dispensary).

RIGHT.

LEFT.



E.12.—J.M., male, aged 41. Referred to T.O. July 1939. Chief complaint cough for 6-7 months. Slight sputum and occasional lassitude; otherwise felt well. Physical signs: Blowing breath sounds left back, occasional post-tussive crepitations. Was wounded in chest in Great War 27-10-18. Intermittent cough—worse in winter. Working as storekeeper. Sputum negative (3 specimens). Skiagram taken 6-7-39 shows an abnormal appearance of third rib on left side, suggesting injury. Below this, at base, there are several small, irregular white patches characteristic of shrapnel.

(*Skiagram taken at Eccles Dispensary*).

RIGHT.

LEFT.

PEEL HALL PULMONARY HOSPITAL, LITTLE HULTON.

Matron MISS E. SIMMONS.

The Hall, with about 17 acres of land attached thereto, was presented in 1914 to the Lancashire County Council by Mr. A. Wynne-Corrie, and an additional 20 acres of land, and later 8 acres, were purchased. The adaptation of the premises as a pulmonary hospital—delayed owing to the Great War—was completed in 1921.

The hospital, accommodating 57 adult males, serves principally Dispensary Area No. 4.

Mr. H. Morryston Davies is the visiting consulting chest surgeon.

A motor ambulance is provided, and is available also for conveying patients to and from other hospitals.

The weekly maintenance charge for 1937-38 was £2 14s. 5d. per patient; this includes 8s. 6d. for structural renewals and repairs, and 4s. 2d. for loan charges.

Dr. Jessel reports:—

The outstanding event of the year was the completion of a new concert room, which was formally opened at a welcome visit paid in June by the County Tuberculosis Committee and the members of the Salford Hundred of the County Council. We are grateful to the Committee for their sympathetic interest and encouragement.

In dealing with tuberculosis, we must not think of it merely as a disease. We are concerned with tuberculous persons and their households. With this in mind, efforts are constantly being made by all concerned to improve the health of our patients, to add to their comfort, and to invigorate their minds. Much of the activity of the nursing staff is directed along such lines. We are glad to record the appointment of the Rev. G. P. Lowe, Vicar of Peel Church, Little Hulton, as a visiting chaplain, and it is expected that Roman Catholic and Nonconformist chaplains will shortly be appointed.

During the year there were 100 admissions, 89 discharges and 11 deaths. The average length of stay of patients discharged was 205 days, and of patients dying 274 days. Thus the hospital fulfils its functions as : (1) Curative centre, (2) place for nursing and care of acute and advanced cases, and (3) means of preventing or reducing risks of infection in the home. As regards treatment, strictly controlled rest in

bed remains, as formerly, our sheet-anchor, and the use of sandbags on the chests of recumbent patients has proved a useful aid. Everything possible, by means of books, wireless and simple amusements, is done to keep patients happy and contented. As the acute stage passes, patients graduate by easy steps towards controlled exercise, and finally undertake simple, useful hobby-exercises for restricted periods. The second annual bulb show was a success, and the thirteenth Christmas issue of the hospital magazine was as popular as ever.

The statement at the end of these notes includes figures dealing with special treatment. From time to time ancillary surgical measures are necessary, and these were carried out by Mr. Morriston Davies, either at the hospital or at the High Carley Sanatorium (thoracoplasty cases). Mr. Laslett has visited the hospital at intervals to provide necessary dental treatment.

The progress of a patient in hospital is estimated in a number of ways. Apart from the usual temperature and pulse records and sputum examinations, skiagrams are taken at regular intervals and blood sedimentation tests done. The latter have been found very helpful and they can be easily and simply carried out at dispensaries. They are useful in affording an indication of tuberculous activity, as distinct from the presence of semi-quiescent or healed tuberculosis.

Courses of instruction for the nursing staff were given as usual in preparation for the examinations necessary for the certificate of the Tuberculosis Association. One nurse was successful in obtaining the certificate and two others succeeded in passing Part I. of the examination.

Among the many visitors, the following must be specially mentioned:—County Councillor Canon A. Kershaw, to whom we are indebted for talks with the patients at Christmas, and Dr. Philip Tsu-Yan Ch'iu, late Assistant in the Department of Public Health and Hygiene, Peiping. Also Dr. Ali Abdel Rahman Soliman and Dr. Ali Azmy, Tuberculosis Officers of the Egyptian Government, who came as post-graduate students. The North-Western Tuberculosis Society held its summer meeting at the hospital in June, 1938.

My thanks are due to the Matron, Sister Minto, and the nursing staff for their ever ready co-operation.

Details of work carried out at Peel Hall during 1938 :—

Artificial pneumothorax—	
Inductions	17
Refills	278
Gas replacements	50
Division of adhesions	3
Phrenic nerve operations	2
Gold salts—	
Sanocrysin injections	36
Blood sedimentation tests (Westergren method)	409
X-ray work—	
Screen examinations	414
Skiagrams	560
Sputum examinations (positive 294, negative 396)	690

Numbers of patients afforded special treatment in the hospital for the first time during 1938 :—

Artificial pneumothorax—	
Attempted	17
Satisfactory	9
Unsatisfactory	8
Phrenicectomy	2
Gold salts (sanocrysin)	3
Division of adhesions	3

Numbers of patients in the hospital on the 31st December, 1938, who were having special treatment :—

Artificial pneumothorax	8
Artificial pneumothorax and division of adhesions	2
Phrenicectomy and artificial pneumothorax	2
Phrenicectomy, artificial pneumothorax and division of adhesions	1

SUMMARY OF DISPENSARY WORK.

Number of cases under supervision on 31st December, 1938

(Definitely tuberculous, 1,527 ; doubtful, 1) 1,528

Examinations by tuberculosis officers at—	Examinations of <i>new persons</i> and <i>new contacts</i> for diagnosis.	Re-visits or re-attendances of “ <i>old</i> ” <i>cases</i> and “ <i>old</i> ” <i>contacts</i> .
Patients' homes	196	980
Leigh Chief Dispensary	232	962
Eccles Branch Dispensary	400	2,415
Farnworth Branch Dispensary	100	532
Pendlebury Branch Dispensary	62	503
Stretford Branch Dispensary	208	766
	<u>1,002</u>	<u>5,178</u>

Attendances at the Eccles Dispensary for artificial light treatment (88 patients)	4,522
Attendances for artificial pneumothorax treatment (38 patients)	473
Sputum examinations—	
Total number of specimens examined	2,227
Number where tubercle bacilli were found	269
Number of specimens sent by medical practitioners	246
Number of these where tubercle bacilli were found	14
Pus examinations	7
Blood sedimentation tests (Westergren method)	204
Mantoux tests	219
Contacts—	
Number of selected persons examined	196
Number of cases of tuberculosis found	5
X-ray work—	
Skiagrams—pulmonary 1,342, non-pulmonary 81*	1,423
Screenings	539
Care committee meetings attended by—	
(a) Tuberculosis officers	26
(b) Tuberculosis health visitors	40
Care work—	
Number of patients assisted by care committees and tuberculosis sections of civic guilds of help	211
Amount expended	£394/12/9
Number of patients assisted from County care fund	62
Amount expended	£117/14/0
Lectures or addresses given	4
Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals	101
Special visits by tuberculosis officers (<i>i.e.</i> , interviews with medical officers of health, general hospital officials, &c.)	22
Visits by dispensary nurses to patients' homes—	
Routine visits	8,943
Application of surgical dressings	197
Adjustment of splints and surgical appliances	423
Other actual nursing	346
	9,909
Patients' dispensary attendances for attention by nurses—	
Application of surgical dressings	285
Adjustment of splints and surgical appliances	5
	290
Sanitary defects reported to the local medical officers of health	13
Sanitary defects which after notification were remedied	7
Disinfections carried out by local sanitary authorities	508
Percentage of new cases referred by medical practitioners, &c., to tuberculosis officers for an opinion as to diagnosis or treatment <i>before</i> statutory notification	93%

*Spine 28, hip 18, knee 16, shoulder 6, wrist 6, ankle 2, hand 2, elbow 1, foot 1, pelvis 1.

XVI.—DISPENSARY AREA No. 5
(including Rufford Pulmonary Hospital).

Area (estimated population 310,025) embraces West Lancashire Rural, Crosby, Litherland, Newton-le-Willows, Whiston Rural, Warrington Rural, and Widnes districts.

Consultant Tuberculosis Officer DR. C. W. LAIRD.
(Dr. Laird is also visiting medical superintendent of the Rufford Pulmonary Hospital).

Assistant Tuberculosis Officers DR. C. BERRY.
DR. J. N. WHYTE.

Dr. Laird reports :—

In 1938 there was a very definite increase in almost every branch of the dispensary activity over that recorded for this area in 1937. This is due, not so much to a greater number of cases of tuberculosis, as to the fact that we now have the whole-time services of a second assistant tuberculosis officer who formerly worked in the area only two days per week. Hence it has been possible to arrange for additional dispensary sessions, to enlarge the scope of dispensary supervision, to undertake more easily the examination of contacts, to apply more generally the use of special tests in diagnosis, and to carry out artificial pneumothorax treatment more satisfactorily with shorter intervals between refills. As a further consequence, radiological work has undergone a corresponding extension, and the number of bacteriological examinations has also grown. There has been a rise, too, in the number of visits made to public assistance and other institutions for investigating and arranging treatment respecting cases reported by them. These, together with periodical journeys to the Barrowmore, Eccleston Hall, and Hefferston Grange Sanatoria, and the routine calls on patients in their homes, have certainly justified the modicum of extra help on the medical side, and go to prove that its advent was not, after all, inopportune.

The still rapidly-growing population of Huyton-with-Roby has made greater demands on every member of the dispensary organisation. The number of cases from that district alone, with its three large housing estates accommodating to a great extent migrants from the less desirable quarters of Liverpool, is probably well above the average for the rest of the area, and the proportion of advanced cases would appear to be also higher than normal. A corresponding increase of population has occurred in the Maghull section of the West Lancashire Rural District, and this, too, has had its effect on increasing the work of the staff.

As in other years, most of the special measures concerned with diagnosis and treatment were carried out at the chief dispensary at Seaforth.

The number of patients who received light treatment at the St. Helens Dispensary during 1938 is comparatively small, the majority of the cases being children. Compared with 1937, there is a decrease of 24 per cent. Treatment has been of three kinds—local, general, and a combination of the two. Only one case received local treatment alone, while eleven received a combination of local and general treatment. During 1938, 56 patients received treatment ; of these, 23 became quiescent and apparently well, 14 ceased to attend either on their own initiative or for other reasons, and 19 were still undergoing light therapy at the end of the year. In 91 per cent. of the cases travelling expenses were partially or wholly defrayed through the County funds.

At Widnes, there was opened in Chapel Street a new dispensary built by the County Council for the care of persons suffering from tuberculosis. It is a centre for diagnosis, supervision, and treatment and presents a welcome contrast to the former premises at Brendan House which had long been unsuitable for the purposes intended. The hygienic conditions and general amenities in the new building are more in keeping with medical exhortations, stressing the value of cleanliness, tidiness, open-air life, and sane living. It will be possible in this dispensary with the aid of x-ray control to carry out artificial pneumothorax treatment, and thus obviate the need for many patients to go to Seaforth for refills as heretofore. It is hoped that the provision of a more up-to-date installation within a year or so will enable one to carry out further activities.

Four care committees continue to do very useful work in Huyton-with-Roby, Prescott, Earlestown, and Widnes. One has to acknowledge with gratitude the help extended by them to poorer patients before and after institutional treatment is received. In districts where such committees do not function, similar assistance for suitable cases is available from the County care fund.

At the annual meeting of the Huyton-with-Roby District Care Committee a short address was given by me, as its medical adviser, on anti-tuberculosis work with special reference to the County scheme.

In the course of the year, popular lectures were given under the auspices of the County Council by Dr. Harley Williams, the then Medical Commissioner of the National Association for the Prevention of Tuberculosis. Successful meetings, attended by large and appreciative audiences, took place at Huyton, Earlestown, Skelmersdale and Prescott. Afternoon sessions were arranged for school children, and evening lectures mainly for adults. The lectures were illustrated by lantern slides.

It is gratifying to observe from year to year—and 1938 was no exception—improved co-operation by public and profession in measures for earlier recognition and appropriate treatment of the disease. The traditional “hope” of the consumptive now derives encouragement from the striking results of modern advance in diagnosis and therapeutic skill. It is true to-day that many whose chances of recovery might have been slender in years gone by, are not only survivors of a desperate ill but useful and happy members of a working community. The responsibility for this change of outlook is shared by physician and surgeon alike, apart from the beneficent power of nature, and may be claimed for the guarded methods of the one no less than the bolder action of the other. Nowadays it is often necessary for the physician, in the best interest of his patient, to think in terms of surgery. Equally so at times is it desirable for the surgeon to moderate his zeal and to consider the claims of medicine in the management of the case. There are always different points of view. Two eyes may be better than one, and, for that matter, four may be better than two.

It gives me pleasure to pay tribute to the team work of the medical, nursing, and clerical members of the dispensary staff, whose united efforts have gone far to make for an efficient service to the benefit of all concerned. I have to thank them, one and all, for their help and consideration in making my own task lighter than it might otherwise be.

RUFFORD PULMONARY HOSPITAL, NEAR ORMSKIRK.

Matron MISS S. HOLMES.

The County Council acquired, on the 18th October, 1920, Rufford New Hall, situated on the west side of the main road from Preston to Ormskirk, together with 128 acres of land adjoining the Hall. Under pressure from the Ministry of Health, a scheme was prepared for using the Hall and land for discharged sailors and soldiers, which included training the patients in several occupations. Some additional land was also obtained with a view to training in agricultural work, but all this, however, was abandoned in 1921 by order of the Ministry of Health, owing to financial stringency. The premises, first used as a pulmonary hospital on the 7th April, 1926, provide accommodation for 52 female patients.

The hospital serves as far as possible the districts in west Lancashire, so that relatives and friends will have reasonable facilities for visiting.

The weekly maintenance charge for 1937-38 was £2 13s. 11d. per patient, which includes 5s. 3d. for loan charges.

The average length of stay of patients at Rufford during 1938 was as under :—

Patients discharged	.....	.....	.....	.....	.....	.....	206 days.
Patients who died in the hospital	.....	.....	.....	.....	.....	.....	100 days.

Dr. Laird reports as follows :—

In 1938, 95 patients were admitted to the hospital, 79 were discharged, and 17 died, the numbers being very similar to those of the previous year.

While there was little or no alteration in the forms of treatment given, the type of patient received was, on the whole, less suitable for special surgical measures. It has seemed that more elderly persons were admitted, and that in a greater proportion was the disease too widely distributed for the application of therapeutic collapse. The factors which determined the selection are various. It is impossible to ignore such points as the distance from the patient's home, transport facilities for visitors, and the matter of expense to relatives concerned. There are occasionally patients who adopt a defiant attitude and are prepared to refuse any and every type of offer of a vacancy, unless it be in an institution acceptable to their taste. With such, the medical aspect of the case and its suitability for such institution may be an indifferent affair. Another difficulty is that of the patient who takes a dislike to the sanatorium or hospital in which he or she may be, and who, very often on mere hearsay, takes a fancy to be transferred to another—perhaps to find it not as expected and to ask for another transfer back to the place recently vacated. Lastly, there is the problem case of the patient who is without a home, though possibly not entirely destitute, and who is therefore hardly one to send to a public assistance hospital. Quite a few of this kind spend years in this, that, or the other sanatorium and, unfortunately, owing to their extensive experience of various places they are inclined not infrequently to make odious comparisons and to act as a disturbing influence on the other patients. Thus the difficulties of selection of cases are appreciated though none the less regretted, and it is only to be hoped that not without good reason will these be allowed to outweigh the major point of importance, namely, whether the best possible use is being made of the facilities available for treatment in any particular institution.

Dr. Berry gave lectures to nurses preparing for the examination of the Tuberculosis Association, and assisted me in other ways usually on two half days per week.

Visits were made to the hospital by Canon Kershaw as Chairman of the County Tuberculosis Committee; by Dr. Harley Williams, then Medical Commissioner and now Secretary-General of the National Association for the Prevention of Tuberculosis; and by Dr. I. C. MacIntyre, Medical Director of the Cashmere Sanatorium, Christchurch, New Zealand. On June 25th a visit was paid by the Southport Branch of the Royal College of Nursing.

Three concerts were given by friends of the hospital in January, February, and March, for the entertainment of the patients. Members of the staff of Withnell Hospital and other officials from Dispensary Area No. 2 and the County Offices very kindly performed a play, and a special picture show was given by Mr. M. H. Seddon of the Central Office. Carol singers from Rufford village visited the hospital as usual in December. To all those who contributed in these and other ways to the enjoyment of patients at Rufford I would express my very sincere thanks on behalf of those whom they endeavoured to cheer in their misfortune.

We are indebted to the Rev. Mr. McGrath and to Father Rogerson for attending to the spiritual needs of the patients throughout the year.

I have pleasure in acknowledging once again the annual grants made by the County Tuberculosis Committee for extra fare at Christmas, and for the provision of periodicals.

Miss Holmes and the nursing staff have co-operated, as before, willingly and successfully in the management of the hospital, and their help is gratefully appreciated.

Details of work carried out at Rufford during 1938 :—

Artificial pneumothorax—					
Inductions	.....	.....	.....	.....	23
Refills	.....	.....	.....	.....	444
Gas replacements	.....	.....	.....	.....	20
Gold salts—					
Sanocrysin injections	.....	.....	.....	.....	455
Crisalbine injections	.....	.....	.....	.....	247
Calcium injections	.....	.....	.....	.....	101
Pleural irrigations	.....	.....	.....	.....	14
Blood sedimentation tests (Cutler method)	.....	.....	.....	.....	167
X-ray work—					
Screen examinations	.....	.....	.....	.....	1,032
Skiagrams	.....	.....	.....	.....	287
Sputum examinations (positive 420, negative 129)	.....	.....	.....	.....	549

Numbers of patients afforded special treatment in the hospital for the first time during 1938 :—

Artificial pneumothorax—					
Attempted	.....	.....	.....	.....	23
Satisfactory	.....	.....	.....	.....	14
Unsatisfactory	.....	.....	.....	.....	9
Gold salts (sanocrysin and crisalbine)	.....	.....	.....	.....	48

Numbers of patients in Rufford on the 31st December, 1938, who were having special treatment :—

Artificial pneumothorax	.....	.....	.....	.....	7
Artificial pneumothorax and gold salts	.....	.....	.....	.....	5
Gold salts	.....	.....	.....	.....	14

SUMMARY OF DISPENSARY WORK.

Number of cases under supervision on 31st December, 1938
(Definitely tuberculous, 1,164 ; doubtful, 20) 1,184

Examinations by tuberculosis officers at—	Examinations of <i>new persons</i> and <i>new contacts</i> for diagnosis.	Re-visits or re-attendances of “ <i>old</i> ” cases and “ <i>old</i> ” contacts.
Patients' homes	145	608
Seaforth Chief Dispensary	406	2,006
Huyton Branch Dispensary	153	633
St. Helens Branch Dispensary	100	1,134
*Widnes Branch Dispensary	167	1,241
	826	5,014

* New premises in Chapel Street, Widnes, opened 13th December, 1938.

Attendances at St. Helens Dispensary for artificial light treatment (55 patients)	1,830
Attendances for artificial pneumothorax treatment (55 patients)	691
Attendances for eulykol (hydnocarpates) treatment	20
Mantoux tests	137
Care committee meetings attended by—	
(a) Tuberculosis officers	1
(b) Tuberculosis health visitors	24
Lectures or addresses given	1
Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals	105
Special visits by tuberculosis officers (<i>i.e.</i> , interviews with medical officers of health, general hospital officials, &c.)	11
Visits by dispensary nurses to patients' homes—	
Routine visits	4,931
Application of surgical dressings	148
Adjustment of splints and surgical appliances	179
Other actual nursing	53
	5,311

Patients' dispensary attendances for attention by nurses—			
Application of surgical dressings .....	.....	422	} 461
Adjustment of splints and surgical appliances .....	.....	39	
Sanitary defects reported to the local medical officers of health .....	.....		73
Sanitary defects which after notification were remedied .....	.....		49
Disinfections carried out by local sanitary authorities .....	.....		335
Percentage of new cases referred by medical practitioners, &c., to tuberculosis officers for an opinion as to diagnosis or treatment <i>before</i> statutory notification			
			85%

XVII.—HIGH CARLEY SANATORIUM, OUBAS HOUSE CHILDREN'S SANATORIUM, AND FURNESS DISPENSARY AREA.

<i>Medical Superintendent</i>	DR. G. LEGGAT.
(Dr. Leggat is also visiting medical superintendent of Oubas House Children's Sanatorium, Ulverston, and consultant tuberculosis officer for the Furness Dispensary Area—i.e., the area around the sanatorium—containing a population of 38,122).	
<i>Visiting Consulting Chest Surgeon</i>	MR. H. MORRISTON DAVIES.
<i>Junior Visiting Consulting Chest Surgeon</i>	MR. F. R. EDWARDS.
<i>Visiting Anaesthetist</i>	DR. J. HALTON.
<i>Assistant Medical Superintendent</i>	DR. C. V. STEVENSON.
<i>Junior Assistant Medical Officer</i>	DR. G. A. WILTHER (from 15/2/38)
<i>Matron</i>	MISS E. WOOSLEY.

(The matron is also responsible for the Oubas House Children's Sanatorium, Ulverston).

HIGH CARLEY SANATORIUM, NEAR ULVERSTON.

High Carley Sanatorium is situated about three miles west of Ulverston, to the south of the main road to Barrow-in-Furness. The buildings stand in 23 acres of land, and accommodation is provided for 130 patients (60 males and 70 females) in 37 double cubicles, 22 single cubicles, 4 six-bed wards, and 5 double sleeping shelters.

The medical superintendent and the junior assistant are accommodated on the estate; and seven houses are provided in the vicinity of the sanatorium for the male employees.

Electricity is obtained from the public supply.

A treatment block was built in December, 1932, and contains on the ground floor an operating theatre, waiting and anaesthetic room, sterilising room, recovery room, artificial light room with a room adjoining for the sister, laboratory, x-ray room, dark room and sluice room; on the first floor five bedrooms and a sick room are provided for the staff.

The following improvements and extensions were completed in September, 1939 :—

Extension to treatment block.—Two recovery rooms, laboratory (original laboratory made into dentist's room), waiting room, store, surgeons' dressing and douche room, dispensary, lavatory, out-patients' and visitors' w.c.

Extension to administrative block.—Junior assistant medical superintendent's sitting and dining room, and bedroom, provided at the west end of the block.

New nurses' home, containing matron's quarters, bedrooms for 28 nurses, recreation and reading rooms, sewing room, laundrette, kitchen, stores, linen room, box room, cloak room, drying room, shoe room and sanitary arrangements.

Extension to kitchen block.—New sitting room for maids, drying room and shoe room.

Ward kitchens.—Provided at the rear of the duty room on both the male and female pavilions.

Concert hall and chapel.—Built to the south of the female pavilion,

The weekly maintenance charge for 1937-38 was £2 19s. 6d. per patient. This includes 7s. 9d. for structural renewals and repairs, and 4s. 8d. for loan charges.

The average length of stay of patients at High Carley during 1938 was as under :—

Patients discharged	248 days.
Patients who died in the sanatorium	209 days.
Observation cases	83 days.
Observation case which died in the sanatorium	68 days.

Dr. Leggat reports as follows :—

During the year, 164 pulmonary patients were admitted, 141 were discharged, and 13 died ; 26 cases were sent in for observation, 24 were discharged, and 1 died. In addition, one patient suffering from non-pulmonary tuberculosis was treated. Table 32 on page 101 shows the condition on discharge of the pulmonary and observation cases.

Artificial pneumothorax.—The number of patients continuing from the previous year was 42, and during 1938, 68 patients commenced this form of treatment. There were 48 successful inductions and 20 unsuccessful ; in addition, 9 patients admitted during the year were already undergoing artificial pneumothorax treatment.

Of 99 patients in whom a successful induction had been obtained, 52 were discharged during the year, and 42 were still in the sanatorium at the end of the year ; two died, treatment was abandoned in two cases owing to unsatisfactory collapse, and one patient was transferred to another institution.

Of the 52 patients who were discharged during the year, 39 had positive sputum on commencement which in 25 cases became negative after repeated Ziehl-Neelsen tests and culture (Lowenstein-Jensen method), equal to a bacillary loss of 64.1 per cent.

The number of refills during the year was 2,379.

Thoracoscopy and division of adhesions.—The benefits of thoracoscopy and division of adhesions are now so widely recognised that any further comments are almost superfluous. But I should like to add that the excellent results of this operation, with the infrequency of any serious complications, convinces one that thoracoscopy ought definitely to be carried out where adhesions are present. It is quite impossible from a skiagram to say whether adhesions are divisible, and it is only by viewing through the thoracoscope that one can give a definite opinion.

In 13 cases the sputum was positive before the patients underwent division of adhesions ; eight of these eventually became negative, giving a bacillary loss of 61.5 per cent.

The following Table 28 shows the patients on whom this operation was performed during 1938, and the results of the treatment :—

Patient.	No. of operations.	Number of adhesions divided on each occasion and remarks.	Complications.	Result of treatment.	Sputum.	
					Before operation.	After operation.
J.H.	One.	One. This case had already had a thoracoscopy done in 1937—three adhesions were divided with numerous string adhesions—and was re-done in 1938.	Nil.	Marked improvement in the collapse, especially of the area of disease in the upper zone.	+	—
E.C.	One.	Two.	Fluid.	Definite improvement in the collapse. Control of the cavities about three months after the division of adhesions.	+	Nil 15-11-38
E.R.	Two.	(1) Five. One broad adhesion, with veil-like prolongation, divided. Four thread-like adhesions at the apex divided. One adhesion attached to the subclavian artery was not divided. (2) One. One adhesion divided. One adhesion with lung fixed to thoracic wall was not divisible.	Fluid.	Cavities not controlled. Thoracoplasty was advised but patient would not submit.	+	+ + 5-10-38 + 1-6-39
G.L.	One.	Four. Still numerous adhesions passing between the lung, the carotid artery and supra-intercostal vessels. Lung fixed to chest wall posteriorly.	Fluid.	Marked improvement in the collapse, with a certain amount of increased control of the cavities.	+	— — 16-1-39
W.B.	Two.	(1) Fluid, found to be present before, was removed, and one adhesion enucleated. (2) A long tubular adhesion running from the apex of the lower lobe to the posterior thoracic wall; this was divided. One other adhesion not divisible.	Fluid which was present before thoracoscopy.	Almost complete collapse of the whole lung.	—	—
D.P.	Three.	Seven and veil partly divided. Several adhesions were found to be indivisible.	Slight haemorrhage which cleared up with saline wash-outs, but fluid developed later and the lung began slowly to creep out at the base.	Definite improvement in the collapse and increased control of numerous large cavities.	+	+ Adm. Rufford 6-2-39; + 6 times last time 29-5-39
D.S.	Two.	(1) Two. Lung was found to have become adherent from the base to the lower half of the axillary line; at the upper edge of this there was a crescentic adhesion which was indivisible. (2) One.	Bleeding occurred during the first operation; this was controlled. Considerable clot in the cavity as a result. As much of this as possible was washed out with saline. Small puddle of fluid costo-phrenic angle which gradually cleared	Improvement in the collapse. The lung in this case gradually became adherent, in spite of increased pressures, and on discharge 7 months later only showed a small pocket of air at the apex.	+	—

THORACOSCOPY AND DIVISION OF ADHESIONS.



H.C.1(a).—W.B., male, aged 17 years. Skiagram taken 6-1-38 shows on left side a moderately good collapse with two adhesions passing upwards laterally from apex of lung to chest wall. Puddle of fluid at costo-phrenic angle.



H.C.1(b).—Same patient. Thoracoscopy performed on two occasions. There was an adhesion, running backwards from apex of lower lobe, which was floating in fluid; fluid removed and adhesion enucleated 6-1-38. A long tubular adhesion was found running from apex of lower lobe to posterior thoracic wall; this was divided 17-6-38. Skiagram taken 5-7-38 shows complete division of all adhesions and marked improvement in the collapse.

(Skiagrams taken at High Carley Sanatorium).

RIGHT.

LEFT.



H.C.2(a).—H.K., female, aged 21 years. Skiagram taken 23-3-39 shows an irregular type of collapse with adhesions passing upwards from apex to chest wall. Puddle of fluid at costo-phrenic angle. Thoracoscopy performed 12-4-39.



H.C.2(b).—Same patient. There were four adhesions; two running up to axilla, one of which was large; the third was a band-like adhesion running up adjacent to sub-clavian artery; the fourth was running more posteriorly. All these were divided. Skiagram taken 19-4-39.

(Skiagrams taken at High Carley Sanatorium).

RIGHT.

LEFT.



H.C.2(c).—Same patient. Skiagram taken 4-7-39 shows complete division of adhesions with marked improvement in the collapse. Puddle of fluid less.

EXTRA PLEURAL PNEUMOTHORAX.



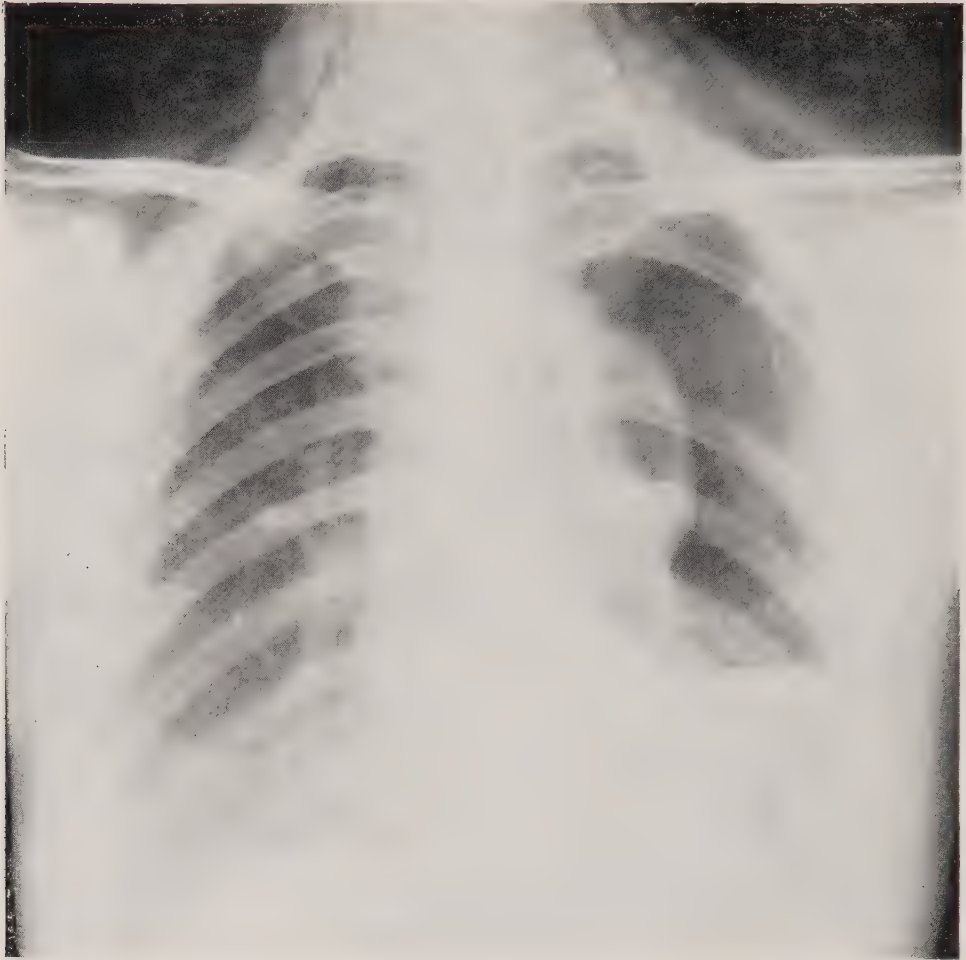
H.C.3(a).—J.M., female, aged 33 years. Skiagram taken 30-7-38 shows a lesion at left apex with a large cavity above and below clavicle. Sputum positive, $\frac{1}{2}$ oz. Artificial pneumothorax attempted but failed. Extra pleural pneumothorax performed on 12-8-38.

RIGHT.

(Skiagrams taken at High Carley Sanatorium).

LEFT.

EXTRA PLEURAL PNEUMOTHORAX—*contd.*



H.C.3(b).—Same patient. Skiagram taken 14-8-38, two days after operation, shows an excellent extra pleural pneumothorax pocket, complete collapse of apex of lung, with a large cavity in centre. There is a small puddle of fluid at base of extra pleural pneumothorax pocket.



H.C.3(c).—Same patient. Skiagram taken 18-8-38, after gas replacement ; cavity still present but less.

(Skiagrams taken at High Carley Sanatorium).

RIGHT.

LEFT.

EXTRA PLEURAL PNEUMOTHORAX—*contd.*



H.C.3(d).—Same patient. Skiagram taken 19-10-38. Cavity appears now to be completely obliterated.



H.C.3(e).—Same patient. Skiagram taken 23-5-39. A certain amount of reduction in extra pleural pneumothorax pocket, but cavity is apparently still closed. Patient became symptomless and free from sputum within a week of the operation. Has now returned to duty as a sister in the out-patient department of a large hospital.

(Skiagrams taken at High Carley Sanatorium).

RIGHT.

LEFT.

Table 28—continued.

Patient.	No. of operations.	Number of adhesions divided on each occasion and remarks.	Complications.	Result of treatment.	Sputum.	
					Before operation.	After operation.
I.W.	Two.	(1) Two. Numerous adhesions at the apex more or less fused it to the thoracic wall. (2) Three.	Severe bleeding from one of the vessels, which required diathermy.	Marked improvement in the collapse, with almost complete control of medium-sized cavity at apex. Only remained in for 6 weeks. Collapse improved.	+	+
B.H.	One.	Two adhesions indivisible. Three smaller ones divided.	Nil.		—	—
M.H.	Two.	(1) Two. (2) One. Numerous adhesions found to be indivisible.	Puddle of fluid.	Marked improvement in collapse with almost complete control of medium-sized apical cavity.	+	—
W.F.	One.	One.	Nil.	Marked improvement in collapse, especially of upper diseased zone.	—	—
F.W.	One.	One.	Fluid present before thoracoscopy, slightly bloodstained after thoracoscopy washed out with saline. Pyo-pneumothorax developed later.	Collapse improved.	—	—
T.D.	One.	Two.	Fluid.	Division of adhesions carried out to control haemoptysis, which it did most successfully. Cavities not completely controlled. Spread of disease to opposite lung.	+	+
M.S.	One.	Three.	Fluid. Pyo-pneumothorax developed later but cleared up with wash-outs.	Collapse improved.	+	+
E.F.	One.	Six bands.	Nil.	Marked improvement in collapse with control of apical cavity.	+	—
S.J.	One.	Three, and numerous small ones.	Nil.	Collapse improved.	+	—
E.A.	Two.	(1) Series. (2) Three.	Fluid present before thoracoscopy, slightly bloodstained after. Washed out with saline. Pyo-pneumothorax developed later, but cleared up with wash-outs.	Marked improvement in collapse and partial control of very large cavities. Thoracoplasty advised, but patient refused.	+	+

Here inserted are several x-ray photographs illustrating thoracoscopy and division of adhesions.

Phrenic nerve interruption.—The operation of phrenicectomy was performed in 44 cases, and phrenic crush in 17 cases. In the case of phrenicectomy the bacillary loss is 48·3 per cent., and for phrenic crush 21·4 per cent.

Thoracoplasty.—The following Table 29 shows, for patients discharged from High Carley up to the end of 1937, the results of the operation of complete thoracoplasty (*i.e.*, portions of at least 10 ribs removed) :—

Patient.	Date of last operation.	Sputum.			Present working capacity.	
		Before operation.	On discharge.	On last examination.	Fit for work.	At work.
L.W.	14-10-33	Positive, 1-4 dr.	Nil, 1 dr. occ.	Positive, 27-2-39	Yes.	Yes.
M.M.	12-2-35	Positive, specimen only.	Nil.	Nil, 5-4-38	No.	No.
M.I.	5-5-35	Nil.	Nil.	Nil, 20-9-38	Yes.	No.
M.S.	25-1-36	Positive, 1 oz.	Negative, 2 dr.	Nil, 8-3-39	Yes.	Yes.
N.L.	15-2-36	Positive, 1-2 dr.	Negative, 0-2 dr.	Nil, 21-9-38	No.	No.
V.B.	6-6-36	Positive, 1-3 oz.	Negative, 1-4 dr.	Positive, 11-8-38	Yes.	Yes.
A.B.	28-5-36	Positive, 5-16 dr.	Nil.	Negative, 16-1-39	No.	No.
M.G.	28-5-36	Positive, 1 dr.	Nil.	Nil, 5-2-38	Yes.	Yes.
I.B.	11-8-36	Positive, 1-11 dr.	Nil.	Nil, 25-4-38	Yes.	Yes.
E.S.	2-9-36	Positive, 1 oz.	Nil.	Nil, 19-10-38	No.	No.
W.B.	8-12-36	Positive, 2-12 dr.	Nil.	Nil, 31-10-38	Yes.	No.
A.T.	20-2-37	Positive, 2-20 dr.	Nil.	Nil, 28-4-38	No.	No.

Since the last report two cases in the above table have been returned as developing a positive sputum. This still leaves, of the cases with positive sputum before operation, 81·8 per cent. with negative or no sputum. There are still 58·3 per cent. of the patients fit for work, and 41·6 per cent. actually at work.

The following Table 30 shows, for patients discharged from High Carley Sanatorium during 1938, the results of the operation of complete thoracoplasty (*i.e.*, portions of at least ten ribs removed) :—

Patient.	Date of last operation.	Sputum.			Present working capacity.	
		Before operation.	On discharge.	On last examination.	Fit for work.	At work.
M.H.	7-1-38	Positive, 2-4 dr.	Negative, trace only	Negative, 26-8-38	No	No
J.K.	24-2-38	Positive, 2-3 dr.	Negative, 0-1 dr.	Negative, 1-3-39	Yes	Yes
K.F.	6-5-38	Positive, 2-4 dr.	Nil	Nil, 31-10-38	No	No
F.H.	17-6-38	Negative, 4 dr.	Negative, 4-8 dr.	Negative, 8-12-38	No	No
M.A.	7-9-37	Positive, 4-8 dr.	Positive, 1-4 dr.	Nil, 30-1-39	No	No
E.M.	21-9-37	Positive, 7-10 dr.	Negative, trace only	Nil, 4-10-38	No	No
W.J.	21-12-37	Positive, 2-4 dr.	Nil	Nil	Yes	Yes

The results in this table are as striking as last year, and comments are almost superfluous, but I think it is again important to draw attention to one or two points. All these patients except one had a positive sputum before operation, and now it is negative or absent; in other words, patients previously highly infectious have been rendered free from infection. In all cases efforts had been made without success to arrest the disease before they were submitted to the operation, and since the operation all have been able to return to their homes without fear of disseminating infection to others.

This year our standard of selection has been less rigid and the following deaths have occurred :—

1. M.A. The wound broke down, acute suppuration followed by toxic dilatation of the heart.
2. T.R. A desperate case with extensive cavitation involving practically the whole of the upper and middle zones; general condition was very poor. He survived the first and second stages, but in spite of blood transfusion he never became fit for the third stage to be completed.
3. E.W. This case developed an acute pneumonic spread to the contra-lateral lung and died after the first stage.

Extra pleural pneumothorax.—Five cases had extra pleural pneumothorax during 1938. In three cases the immediate results have been very good, the patients becoming more or less symptomless shortly after the operation. In two cases the operation did not give satisfactory results owing to the presence of dense apical adhesions, making it impossible completely to separate the parietal pleura from the overlying fascia. In both of these cases the resultant extra pleural pneumothorax pocket was very small and refills could only be given with great difficulty.

Where the radiological evidence points to dense apical adhesions, I do not think extra pleural pneumothorax should be attempted, and if there is any doubt the surgeon should be prepared to go on to an apical

thoracoplasty ; the patient's sanction for the operation of thoracoplasty should be obtained before an extra pleural is attempted. To get good results and simplify the giving of refills, I think it is essential to have the parietal pleura stripped down to about the fifth rib in front and the eighth behind.

We have had no trouble with complications. The possibility of haemorrhage has been largely mitigated by the very careful control of any bleeding points during the operation and making certain that no e are left uncontrolled before the wound is closed. In most cases there is a certain amount of surgical emphysema, but this again is la gely prevented by the very careful stitching of the wound in layers Any slight emphysema that did occur caused no trouble.

A refill is given immediately after the operation, another the same evening, and then daily for about a week. An x-ray is taken the day after the operation and then every second day for the first week. After the first week the interval between the refills is gradually spaced out, and in a few weeks they are conducted as in an artificial pneumothorax. The maximum interval between refills has been fortnightly. If fluid is present we leave it alone unless it is excessive, and then we partially gas replace.

The following Table 31 gives particulars of the five patients on whom extra pleural pneumothorax was performed during 1938 :—

Patient	X-ray		Sputum	
	Before operation	After operation	Before operation	After operation
C.B.	Apical cavity above and below the clavicle, with fluid level	Shows complete separation of the parietal pleura down to the 3rd rib in front and the 7th rib behind, with a small puddle of fluid. Complete occlusion of the cavity	Pos. 4 dr. daily	Negative and nil
E.R.	A moderate sized cavity on the right side, lying immediately below the clavicle	Complete separation of the parietal pleura down to the 2nd rib in front and the 5th rib behind, giving an unsatisfactory extra pleural space. Cavity uncontrolled due to presence of dense apical adhesions which it was impossible to get properly separated	Pos 1-3 oz. daily	Pos. 6-12 dr. daily
A.J.	Left artificial pneumothorax with contra-selective collapse, upper zone being adherent with a large area of cavitation	On account of dense apical adhesions an unsatisfactory extra pleural pneumothorax space was obtained.	Pos. 1½-3 oz. daily	Pos. 3-12 dr. daily
L.H.	Shows a lesion with a cavity at the left apex	Shows a good extra pleural pneumothorax space down to the 5th rib in front and the 8th rib behind	Pos. 5 dr. daily	Specimen only. Negative 9 times to Ziehl-Neelsen. Specimen unobtainable for culture
J.M.	Shows a moderate sized apical cavity left side above and below clavicle	Shows an extra pleural space down to the 5th rib in front and the 8th rib behind	Pos. 8 dr. daily	Specimen only. Negative 13 times to Ziehl-Neelsen and once to culture

Skiagrams H.C.3(a) to 3(e) illustrating extra pleural pneumothorax are inserted between pages 92 and 93.

Bacillary loss after surgical intervention.—The bacillary loss after various methods of surgical intervention, tested by repeated Ziehl-Neelsen and Lowenstein-Jensen method of culture, is as follows :—

- (1) *Artificial pneumothorax.*—Cases induced in 1937-38 (in whom a satisfactory collapse was obtained) and either discharged in 1938 or in the sanatorium at the end of 1938 :
39 with positive sputum before treatment.
25 have become negative or nil. Bacillary loss 64·1 per cent.
- (2) *Phrenicectomy.*—Patients operated on in 1938 only :
31 cases had positive sputum before treatment.
15 became negative or nil. Bacillary loss 48·3 per cent.
- (3) *Phrenic crush.*—Patients operated on in 1938 only :
14 cases had positive sputum before treatment.
3 became negative or nil. Bacillary loss 21·4 per cent.
- (4) *Thoracoscopy and division of adhesions.*—Patients operated on in 1938 only :
13 cases had positive sputum before treatment.
8 became negative or nil. Bacillary loss 61·5 per cent.
- (5) *Extra pleural pneumothorax.*—Patients operated on in 1938 only :
5 cases had positive sputum before operation.
3 cases became negative or nil. Bacillary loss 60·0 per cent.
- (6) *Thoracoplasty.*—Patients who had had complete operation during 1937-38 and been discharged up to the end of 1938 :
6 cases had positive sputum before operation.
6 cases became negative or nil. Bacillary loss 100 per cent.

Crisalbine.—Twenty-three cases received this form of treatment during 1938, three continuing from the previous year and 20 commencing during the year.

Treatment was abandoned in 11 cases for the following reasons :—Gastric disturbance and loss of weight, 1 ; diarrhoea, 2 ; feeling unwell, 1 ; ulceration of mouth, 1 ; ulceration of mouth and loss of weight, 1 ; pyrexia, 1 ; loss of appetite and general feeling of malaise, 1 ; alopecia, 1 ; coryza, 1 ; diarrhoea and stomatitis, 1. In addition, one patient was transferred to a pulmonary hospital.

The remaining 11 cases completed a course of three or more grammes.

At the commencement of the treatment, 9 of the above 11 cases had a positive sputum, but on completion of treatment, 4 had lost their tubercle bacilli, representing a bacillary loss of 44·4 per cent.

The x-ray appearances showed improvement in 72·7 per cent. of the cases, and the sedimentation rate in 100 per cent. ; reduction in the amount of sputum occurred in 33·3 per cent. ; and gain in weight in 63·6 per cent.

General bacillary loss.—During the year, 75 patients who had positive sputum on admission were discharged ; in 38 of these cases the sputum on discharge had become negative (Ziehl-Neelsen method), giving a bacillary loss of 50·6 per cent. A careful record of the bacillary loss has been kept for a number of years and the average loss for the last fourteen years is 35 per cent.

Sputum examinations.—The sputum of patients is examined as follows :—Observation cases weekly, T.B. minus cases fortnightly, and T.B. plus cases monthly. During the year, 1,927 specimens of sputum were examined, 772 of which were positive for tubercle bacilli.

Cultivation of tubercle bacilli.—All sputa which give persistently negative Ziehl-Neelsen results are further investigated by the Lowenstein-Jensen culture method by my senior assistant, Dr. Stevenson, who has submitted the following report :—

During the year 124 cultures of sputum have been made, this number representing 84 patients.

Further, on 34 occasions no specimens were obtainable for culture ; 28 of these 34 were never able to give a specimen, even after repeated attempts. From the remaining six, specimens were eventually obtained, five of which proved negative, the sixth one turning out to be positive.

Cultures were performed only on sputa which were returned as negative after repeated microscopic examinations.

Of the total of 84 cases which have been investigated by culture, 53 remained negative throughout the observations, 24 became positive and 6 became negative after showing a positive result ; in one case the result was unobtainable owing to secondary infection.

In a sub-group of patients amongst whom a positive Ziehl-Neelsen had never been obtained, 27 remained negative on culture, while 7 showed a positive result. This gave a 20·6 per cent. positive result in a series which had never been shown to have had the bacillus in their sputum by microscopic methods.

Taking the series in its entirety, the result showed a 31·4 per cent. of positives.

The average number of days between the setting up of a culture and the first signs of growth appearing has been 26 days, the shortest period being 17 days and the longest 34 days.

The average period of time between the last recorded Ziehl-Neelsen positive result and a negative culture was 4 months. The average period between the last recorded Ziehl-Neelsen positive and a positive culture being obtained was 3 months, but in this group there were 2 cases in which 10 months elapsed between a positive Ziehl-Neelsen and a positive culture ; if these 2 are excluded the average works out at $2\frac{1}{4}$ months.

From time to time, throughout the period covered sputa, which were positive microscopically were put up for culture to test the technique, and they all turned out positive. These cases have not been included in the above series.

Over the same period 46 pleural effusions, 4 samples of pus, 2 cerebro-spinal fluids, and 1 urine have been cultured.

Of the pleural effusions 21 turned out negative and 25 positive, giving 54·3 per cent. of positives. The average period of time before growth appeared was 21 days.

The 4 samples of pus showed 2 negative and 2 positive results.

The cerebro-spinal fluids were both positive.

The urine was negative.

While the culturing of sputum is undoubtedly a reliable method for the detection of infection in a tuberculous person, the time and expense involved are considerably more than for the Ziehl-Neelsen microscopic procedure, so that culture will be confined to those specimens which are persistently negative under the microscope.

It takes from $1\frac{1}{4}$ to $1\frac{1}{2}$ hours to do one culture, including the associated clerical work, although 4 cultures can be done with comparatively little addition to the time. In addition the technique is more involved and has to be more carefully adhered to in order to obtain satisfactory results.

Patients' weights are taken at weekly intervals. The average gain in weight of both male and female patients who completed two or more months' treatment was 12·2 lbs.

The dental work has been carried out in a most excellent manner by Mr. Arthur Miller, who during the year treated 127 County patients, particulars of which will be found in Chapter XXIV. His services have been most useful in clearing up septic foci in cases that were waiting for major surgical intervention. I should like to thank Mr. Miller for the help he has given during the year.

Probationer nurses are prepared for the examinations held under the auspices of the Tuberculosis Association. During the year five nurses sat for Part I. and three passed ; seven sat for Part II., four of whom were successful.

The forms of occupational therapy carried out during the year were : Joinery, carpentry, wattle hurdle making, cane chair mending, gardening and poultry keeping.

We have been greatly helped this year by the completion of a large recreation hall and chapel. There is a well-appointed stage, and several excellent concerts have been given by both male and female patients. The County Tuberculosis Committee very generously made a grant for providing a " Filmo-sound " projector for silent or sound pictures. Weekly exhibitions were given during the winter months and were greatly appreciated by both patients and staff.

The library, which is kept up-to-date by grants from the County Tuberculosis Committee, still continues to be greatly appreciated by the patients and staff.

Under new arrangements the Committee appointed Canon Burnett as Church of England chaplain, Father Morrissey as Roman Catholic chaplain, and the Rev. G. E. Lodmore as Nonconformist chaplain.

We have been honoured by visits from County Councillors Canon A. Kershaw, Sir Thomas Tomlinson and H. Bright, and Dr. Hall, the County Medical Officer of Health.

We are again much indebted to Mr. Morriston Davies for his help and advice, and to his assistant, Mr. Ronald Edwards, and the anaesthetist, Dr. John Halton. I should like also to thank my assistants, Dr. C. V. Stevenson and Dr. G. A. Wilthew, for the help they have given me.

Building work has been continuous throughout the year to provide accommodation for increased nursing and domestic staff, and extensions to the treatment block. The new nurses' home was occupied at the

beginning of 1939, and this very modernly-equipped building is greatly appreciated by the nurses.

During the year, the routine of the institution has been very much disorganised by the erection of various buildings. This has caused many complications and difficulties to arise, and I should like to thank the matron, Miss Woosey, for the excellent manner in which these have been overcome; the nursing staff generally for the loyal support they have given me; and finally Mr. Nichols, the clerk for the institution.

Details of work carried out at High Carley during 1938 :—

Artificial pneumothorax—	
Inductions	68
Refills	2,379
Gas replacements	50
Pressure tests	18
Thoracoscopy	3
Thoracoscopy and division of adhesions	25
Phrenic nerve operations	62
Thoracoplasty operations	35
Extra pleural pneumothorax	5
Gold salts—	
Crisalbine injections	220
Other operations—	
Opening of old sinus	2
Pleural wash-outs	41
Aspiration of spine	1
Incisions	5
Injection and ligature (varicose vein)	1
Lumbar puncture	2
Dressings	126
Permanent drain inserted	2
Removal of sequestrum	1
Removal of cyst	1
Throat examinations	135
Methylene blue injection	1
Blood sedimentation tests (Cutler)	1,289
Mantoux tests	2
Lipiodol	12
X-ray work—	
Screen examinations	2,824
Skiagrams	1,430
Sputum examinations (Ziehl-Neelsen)—	
Positive	772
Negative	1,155
Cultures (Lowenstein-Jensen method)—	
Sputum 124, pleural fluid 46, pus 4, cerebro-spinal fluid 2, urine 1	177

Number of patients afforded special treatment for the first time during 1938 :—

Artificial pneumothorax—	
Attempted	68
Satisfactory	48
Unsatisfactory	20
Phrenic crush	17
Phrenicectomy	44
Thoracoplasty	13
Crisalbine	20
Thoracoscopy	3
Thoracoscopy with division of adhesions	17

Number of patients in High Carley on the 31st December, 1938, who were receiving special treatment :—

Artificial pneumothorax	.....	.....	.....	.....	.....	42
Phrenicectomy	.....	.....	.....	.....	.....	2
Thoracoplasty	.....	.....	.....	.....	.....	12
Crisalbine	.....	.....	.....	.....	.....	1

The following Table 32 shows the condition of patients discharged from the High Carley Sanatorium during the year 1938 :—

Classification on admission to the sanatorium.	Condition at time of discharge.	Duration of residential treatment in the sanatorium.					Total.	
		Under 28 days.	1—3 months.	3—6 months.	6—12 months.	More than 12 months.	No.	%
T.B. minus	Quiescent	—	4	11	9	3	27	71·0
	Improved	1	2	1	2	1	7	18·4
	No material improvement	2	—	—	—	—	2	5·3
	Died in sanatorium	1	1	—	—	—	2	5·3
T.B. plus 1	Quiescent	—	2	3	7	3	15	65·2
	Improved	—	2	1	1	3	7	30·4
	No material improvement	—	—	—	—	—	—	—
	Died in sanatorium	—	—	1	—	—	1	4·3
T.B. plus 2	Quiescent	—	—	2	7	12	21	25·0
	Improved	1	8	11	14	10	44	52·4
	No material improvement	1	1	7	2	2	13	15·5
	Died in sanatorium	—	—	2	4	—	6	7·1
T.B. plus 3	Quiescent	—	—	—	—	3	3	33·3
	Improved	—	2	—	—	—	2	22·2
	No material improvement	—	—	—	—	—	—	—
	Died in sanatorium	1	1	—	1	1	4	44·4
Total		7	23	39	47	38	154	—
Diagnosis on discharge from observation.					Stay under 4 weeks.	Stay over 4 weeks.		
Tuberculous					3	2	5	20·0
Non-tuberculous					—	19	19	76·0
Doubtful					—	—	—	—
Died					—	*1	1	4·0

Grand Total 179

* Cause of death : Cardiac muscle failure, myocarditis, and pulmonary abscess.

After-histories.—Table 33 below shows the position, five years after discharge, of the patients treated at High Carley Sanatorium during 1932. The 162 cases comprised in the table represent the total discharges from High Carley during 1932, with the exception of :—

Patients who did not remain for 50 days,
Patients who were found to be non-tuberculous,
Patients who died in the sanatorium.

TABLE 33.—*Position, 5 years after discharge, of patients leaving High Carley Sanatorium during 1932.*

Classification.	Died within 5 years of discharge.		Known to be alive 5 years after discharge.		Untraced.		Total cases.
	Number	%	Number	%	Number	%	
T.B. minus	5	13·5	30	81·0	2	5·4	37
T.B. plus 1	13	29·5	25	56·8	6	13·6	44
T.B. plus 2	37	48·0	37	48·0	3	3·9	77
T.B. plus 3	3	75·0	1	25·0	—	—	4
All cases	58	35·8	93	57·4	11	6·7	162

The after-results shown in this table are encouraging. It is very satisfactory that 57·4 per cent. of the patients discharged from High Carley during 1932 were known to be alive five years after discharge.

It will be seen that only 11, or 6·7 per cent., of the cases were untraced.

I am indebted to Dr. Cox for the compilation of these statistics at the central office.

OUBAS HOUSE CHILDREN'S SANATORIUM, ULVERSTON.

The medical superintendent, assistant medical superintendent, and matron of the High Carley Sanatorium are also responsible for the work at Oubas House. The sister-in-charge is Miss D. Pope, and the certificated school teacher is Miss A. Gibson.

The house, the property of the County Council, stands in its own grounds (about one acre in extent), and accommodates 21 girls. Educational instruction is given to the children in conformity with the requirements of the Board of Education.

During the year, 11 patients received from the visiting dental surgeon, Mr. A. Miller, some form of dental treatment particulars of which are given in Chapter XXIV.

The weekly maintenance charge for 1937-38 was £1 17s. 7d. per patient.

The average length of stay of patients at Oubas House during 1938 was as under :—

Patients discharged	.....	.....	.....	.....	324 days.
Observation cases	.....	.....	.....	.....	189 days.

Dr. Leggat reports :—

During the year, 10 County patients were admitted, and 11 were discharged with the disease quiescent in each case. In addition, 14 cases were admitted for observation and of these one was diagnosed as tuberculous, 12 were discharged as non-tuberculous, and the remaining case left the sanatorium before a definite diagnosis could be established.

The Mantoux test was carried out in ten cases with the following results :—

Number of positive reactions after 0·1 c.c. of 1/10,000	.....	.....	.....	.....	3
Number of positive reactions after 0·1 c.c. of 1/1,000	.....	.....	.....	.....	4
Number negative in all solutions	.....	.....	.....	.....	3

Specimens of sputum examined during the year numbered 69, all of which were negative for tubercle bacilli.

The average gain in weight of patients discharged during 1938 was 9 $\frac{3}{4}$ lbs.

Through the continued generosity of the County Tuberculosis Committee, the children had four outings during the summer months—two to Walney, one to Grange-over-Sands, and one to Bowness.

We are again indebted to Lady Fell for her frequent visits throughout the year, and for the kindly interest she continues to take in the welfare of the children.

Our thanks are due to the numerous friends who sent baskets of strawberries during the summer months and gifts at Christmas.

We were honoured by several visits from Sir Thomas Tomlinson.

I have to thank Sister Pope for the great help she has given me, the kindness she shows to the children, and the care with which she carries out the prescribed treatment.

The following is a report I have received from Miss Gibson, the school teacher :—

During the year, the school work has been carried on as required by the Board of Education syllabus for open-air schools.

As far as possible, each child is helped to continue her study by the methods adopted at her "home school" in order that, during her stay and treatment at Oubas House, the interruption of her school life shall be reduced to a minimum.

Handwork, gardening, and nature rambles form an enjoyable change to the children.

The younger children are taught by "nursery school" methods.

It is again my pleasure to thank Miss Gibson for the great amount of trouble she takes in the education of the children.

FURNESS DISPENSARY AREA.

Area (estimated population 38,122) embraces Dalton-in-Furness, Grange-over-Sands, Ulverston, and Ulverston Rural districts.

Dr. Leggat reports :—

The number of new cases and new contacts examined during the year was 165 ; of these, 43 were diagnosed as tuberculous, 119 as non-tuberculous, and, at the end of the year, three cases were still under observation.

During the year, 226 skiagrams were taken and 52 screen examinations made at High Carley in regard to dispensary patients.

Seven patients from the dispensary area attended High Carley for artificial pneumothorax refills in continuance of their treatment after discharge from sanatoria.

The examination of sputum, as in previous years, was carried out at High Carley ; 78 specimens were examined, 13 of which were positive for tubercle bacilli and 65 negative.

The proportion of new cases referred to me by medical practitioners etc. for an opinion as to diagnosis before statutory notification still remains at a high figure (94 per cent.) ; this is a clear indication of the very close co-operation that has been maintained in this area between the local practitioners and the dispensary. I should like once again to thank the medical practitioners for their continued support, for without the help they have given me the work could not have been carried out in a satisfactory manner.

My thanks are again due to Nurse Duston for her continued help at the dispensary and in the area. She is always ready to take on extra work, even to sacrificing Saturday afternoons. She has a wide and intimate knowledge of the various families in the district, which is of considerable value in dispensary work,

Summary of Dispensary Work.

Number of cases under supervision on 31st December, 1938 (Definitely tuberculous, 265 ; doubtful, 3)	.....	.....	.....	268
	Examinations of <i>new persons</i> and <i>new contacts</i> for diagnosis.	Re-visits or re-attendances of " <i>old</i> " cases and " <i>old</i> " contacts.		
Examinations by tuberculosis officer at—				
Patients' homes	33	69		
Ulverston Dispensary	132	450		
Attendances at the Ulverston Dispensary for artificial light treatment (25 patients)			.....	838
Attendances for artificial pneumothorax treatment (7 patients)			.....	102
Lectures or addresses given			.....	1
Visits by tuberculosis officer to sanatoria, and pulmonary and special hos- pitals			.....	16
Visits by dispensary nurse to patients' homes—				
Routine visits		1,727	}	1,855
Application of surgical dressings		19		
Adjustment of splints and surgical appliances		20		
Other actual nursing		89		
Patients' dispensary attendances for attention by nurse—				
Application of surgical dressings		20	}	27
Adjustment of splints and surgical appliances		7		
Disinfections carried out by local sanitary authorities .				51
Percentage of new cases referred by medical practitioners, &c., to tuberculosis officer for an opinion as to diagnosis or treatment <i>before</i> statutory noti- fication				94%

XVIII.—ELSWICK SANATORIUM AND FYLDE DISPENSARY AREA.

<i>Medical Superintendent</i>	DR. G. B. CHARNOCK.
(Dr. Charnock is also consultant tuberculosis officer for the Fylde Dispensary Area— i.e., the area around the sanatorium—containing a population of 89,548).	
<i>Visiting Consulting Chest Surgeon</i>	MR. H. MORRISTON DAVIES.
<i>Junior Visiting Consulting Chest Surgeon</i>	MR. F. R. EDWARDS.
<i>Assistant Tuberculosis Officer</i>	DR. D. O. HUGHES (3½ days per week)
<i>Matron</i>	MISS A. JONES.

ELSWICK SANATORIUM, NEAR PRESTON.

This sanatorium is situated on the east side of Elswick; it is six miles from Kirkham and eleven from Preston. The buildings and about 11 acres of land belong to the Fylde, Preston, and Garstang Joint Smallpox Hospital Board, and are held on lease by the County Council until 1955; but negotiations to purchase have been concluded, and the Ministry's approval is awaited. The Council are under an obligation by the terms of the lease to vacate the premises in case of a severe epidemic of smallpox. Accommodation is provided for 38 males and 32 females; total 70 pulmonary cases.

A treatment block contains x-ray room, operating theatre, sterilising room, consulting room, dressing rooms, laboratory, dispensary and office. This block also serves as a dispensary for out-patients from the southern part of the dispensary area and saves their attendance at the Fleetwood Dispensary.

During the year, 66 County patients received from the visiting dental surgeon, Dr. R. D. Allison, some form of dental treatment, particulars of which will be found in Chapter XXIV.

The weekly maintenance charge for 1937-38 was £2 15s. 7d. per patient, which includes 6s. 1d. for structural renewals and repairs.

The average length of stay of patients at Elswick during 1938 was as under :—

Patients discharged	294 days.
Patients who died in the sanatorium	178 days.
Observation cases discharged	31 days.

Dr. Charnock reports as follows :—

During the year, 90 patients suffering from pulmonary tuberculosis were admitted, 77 were discharged, and 15 died ; 16 cases were sent in for observation and 14 were discharged. In addition, 3 non-pulmonary patients were treated during the year. Table 34 on page 110 shows the condition of the pulmonary and observation cases discharged.

The routine work of the sanatorium has continued as in former years. Cases of varying severity of disease are accepted. The average percentage of bed cases during 1938 was 72 per cent. This high figure is due to bed rest being found increasingly beneficial, and also to the additional number of patients undergoing some form of surgical treatment. The present regime, of course, calls for much more nursing and work in the wards. It is becoming more difficult to obtain the right type of nurse with the necessary knowledge and temperament. There is obviously a shortage of nurses who are particularly adapted to this kind of work.

The treatment at Elswick is carried out on recognised lines—abundant fresh air and sunlight, good nourishing food, systematic rest, graduated exercise and work, and therapeutic remedies. Patients are provided with all the medicines required for their tuberculous condition, and are treated for all other intercurrent conditions as they occur.

Special forms of treatment include gold salts, calcium therapy, inhalation therapy, infra-red therapy, diathermy and ultra-violet ray.

Surgical measures include artificial pneumothorax, phrenic crush, phrenicectomy, internal pneumolysis, thoracoscopy, bronchoscopy, and the operation for airtight drainage of the chest. Cases for major surgical operations such as extra pleural pneumothorax, thoracoplasty, etc., are transferred to the High Carley Sanatorium, where a modern thoracic surgical unit exists for the purpose.

Owing to the large number of patients confined to bed, either with active disease or for purposes of surgical measures, there are few in these days who are able to engage in work therapy at any one time. Those who are fit and willing are encouraged to interest themselves in some of the activities of the sanatorium, such as fruit farming, pig and poultry rearing, gardening, woodwork, painting, trenching, basket-chair repairing and wood chopping. There is a modern orchard with hard and soft fruit, and prizes have again been taken for produce at the Great Ecclestone Horticultural Show.

The recreation of the patients has been well catered for. A good library is provided and maintained in up-to-date order. Billiards, darts, bagatelle, dominoes, and card games are always available. Frequent whist drives, with prizes, are organised, and outdoor recreations are bowls and clock golf. The wireless installation is maintained in good order, and is enjoyed by all.

The patients' time is well occupied throughout the day without excitement. It would seem from experience that the less excitement a patient has, the more he benefits from his treatment. Efforts are made to keep the sanatorium as quiet as possible during work hours so that the patients may derive an adequate amount of quiet essential rest.

It is the aim of the County Tuberculosis Committee to keep the accommodation abreast of the times and, in this connection, the re-conditioning of the heating and lighting installation has been completed during the year. The kitchen has been modernised and can cope with the full demands of the sanatorium with the number of beds as established at present. The central block, including new office, laboratory and dispensary, was completed in June. Work is now proceeding on the enlarging of the sewage plant.

Nurses are prepared for the Tuberculosis Association certificate, and three out of four were successful in passing their examinations in 1938.

Elswick is one of the centres where the consulting surgeons and the County tuberculosis officers meet to discuss and review cases. There have been a number of such meetings during the year which have been much appreciated, and we are greatly indebted to Mr. H. Morriston Davies and Mr. Ronald Edwards for the help and advice given to us on these occasions.

In May, the members attending a conference of the County tuberculosis health visitors visited the sanatorium and inspected the grounds and wards, and, in the following month, the Horwich Care Committee paid a visit.

During the year, the Vice-Chairman of the County Tuberculosis Committee, County Councillor E. Clegg, has been a frequent visitor to the sanatorium. Visits also were paid by County Councillors E. Tye and E. Smethurst, and the Medical Officer of Health for Colne.

In conclusion I desire to place on record my indebtedness to my colleagues, and the local clergy for their untiring interest in the patients' welfare.

Details of work carried out at Elswick during 1938 :—

Artificial pneumothorax—		
Inductions	.....	46
Refills	.....	1,079
Gas replacements	.....	2
Division of adhesions	.....	6
Phrenic nerve operations	.....	25
Gold salts—		
Solganal injections	.....	7
Aspirations	.....	14
Inhalation therapy	.....	351
Infra-red ray	.....	33
Blood sedimentation tests (Cutler method)	.....	342
Lipiodol injections	.....	9
X-ray work—		
Screen examinations	.....	1,203
Skiagrams	.....	346
Sputum examinations (positive 274, negative 306)	.....	580
Gasolene concentration tests	.....	5
Urine examinations	.....	531
Other examinations (pleural fluid 4, pus 3, spinal fluid 1)		8

Numbers of patients afforded special treatment in the sanatorium for the first time during 1938 :—

Artificial pneumothorax—		
Attempted	.....	46
Satisfactory	.....	29
Unsatisfactory	.....	17
Phrenic evulsion, phrenicectomy or phrenic crush	.....	25
Gold salts (solganal)	.....	1

Numbers of patients in Elswick on the 31st December, 1938, who were receiving special treatment :—

Artificial pneumothorax	.....	15
Artificial pneumothorax and division of adhesions	.....	1
Phrenic evulsion, phrenicectomy or phrenic crush—		
Alone	.....	7
After artificial pneumothorax	.....	5
Gold salts (solganal)	.....	1

The following Table 34 shows the condition of patients discharged from the Elswick Sanatorium during the year 1938 :—

Classification on admission to the sanatorium.	Condition at time of discharge.	Duration of residential treatment in the sanatorium.					Total.	
		Under 28 days.	1—3 months.	3—6 months.	6—12 months.	More than 12 months.	No.	%
T.B. minus.	Quiescent	—	—	3	2	2	7	50·0
	Improved	—	—	—	—	3	3	21·4
	No material improvement	1	—	—	—	—	1	7·1
	Died in sanatorium	2	1	—	—	—	3	21·4
T.B. plus 1.	Quiescent	—	—	—	2	4	6	40·0
	Improved	—	1	1	3	1	6	40·0
	No material improvement	1	1	—	1	—	3	20·0
	Died in sanatorium	—	—	—	—	—	—	—
T.B. plus 2.	Quiescent	—	—	—	3	6	9	15·3
	Improved	1	4	7	11	11	34	57·6
	No material improvement	2	2	1	1	—	6	10·2
	Died in sanatorium	1	1	3	3	2	10	16·9
T.B. plus 3.	Quiescent	—	—	—	—	—	—	—
	Improved	—	—	—	—	—	—	—
	No material improvement	—	1	1	—	—	2	50·0
	Died in sanatorium	1	1	—	—	—	2	50·0
Total		9	12	16	26	29	92	—

Diagnosis on discharge from observation.		Stay under 4 weeks.	Stay over 4 weeks.		
Tuberculous		3	—	3	21·4
Non-tuberculous		5	6	11	78·6
Doubtful		—	—	—	—

Grand Total 106

FYLDE DISPENSARY AREA.

Area (estimated population 89,548) embraces Fleetwood, Thornton Cleveleys, Fylde Rural, Garstang Rural (part), Lytham St. Annes, and Kirkham districts.

Dr. Charnock reports :—

The x-ray work and artificial pneumothorax refills for the whole area are done at Elswick, where also the administrative work and laboratory investigations are carried out. These arrangements have been found to work most satisfactorily.

The artificial light centre for the area is situated at Fleetwood. Light therapy plays a very definite part in the scheme, and cases of lupus and adenitis continue to obtain benefit. Attendances of patients again have been regular and satisfactory.

Medical colleagues in general practice have been very helpful in advising patients of the dispensary facilities, and in assisting in their subsequent home treatment.

The work generally appears to be increasing. There would also seem to be an increase in the population of the Fylde if the amount of building going on is any indication.

SUMMARY OF DISPENSARY WORK.

Number of cases under supervision on 31st December, 1938					366
(Definitely tuberculous, 363 ; doubtful, 3)					
	Examinations of <i>new persons</i> and <i>new contacts</i> for diagnosis.	Re-visits or re-attendances of " <i>old</i> " <i>cases</i> and " <i>old</i> " <i>contacts</i> .			
Examinations by tuberculosis officers at—					
Patients' homes	63	414			
Fleetwood Dispensary	105	728			
Elswick Dispensary	77	283			
	182	1,011			
Attendances at Fleetwood Dispensary for artificial light treatment (56 patients)					1,627
Attendances for artificial pneumothorax treatment (18 patients)					176
X-ray work—					
Skiagrams					342
Screen examinations					203
Sputum examinations (positive 44, negative 249)					293
Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals					8
Special visits by tuberculosis officers (<i>i.e.</i> , interviews with medical officers of health, general hospital officials, &c.)					2
Visits by dispensary nurse to patients' homes—					
Routine visits.....		1,280			
Application of surgical dressings		149			
Adjustment of splints and surgical appliances		17			
Other actual nursing		13			
					1,459
Patients' dispensary attendances for attention by nurse—					
Application of surgical dressings		486			
Adjustment of splints and surgical appliances		6			
					492
Sanitary defects reported to local medical officers of health					4
Sanitary defects which after notification were remedied					1
Disinfections carried out by local sanitary authorities					46
Percentage of new cases referred by medical practitioners, &c., to tuberculosis officers for an opinion as to diagnosis or treatment <i>before</i> statutory notification					98%

XIX.—WRIGHTINGTON HOSPITAL AND WIGAN COUNTY DISPENSARY AREA.

<i>Medical Superintendent</i>	DR. E. H. A. PASK.
(Dr. Pask is also consultant tuberculosis officer for the Wigan County Dispensary Area—i.e., the area around the hospital—containing a population of 108,942).	
<i>Visiting Consulting Orthopaedic Surgeons</i>	Prof. H. PLATT. Prof. T. P. McMURRAY.
<i>Visiting Consulting Ophthalmic Surgeon</i>	MR. H. H. BYWATER.
<i>Visiting Consulting Urological Surgeon</i>	MR. C. A. WELLS.
<i>Assistant Tuberculosis Officer</i>	DR. E. H. W. DEANE.
<i>Assistant Medical Superintendent</i>	DR. J. DOBSON.
<i>Junior Assistant Medical Officer</i>	DR. C. D. COE (to 31/3/39). DR. G. M. SLEGGS (from 1/4/39).
<i>Matron</i>	MISS E. MOSELEY.
<i>Assistant Matron</i>	MISS M. L. STRUDWICK.

WRIGHTINGTON HOSPITAL, APPLEY BRIDGE, NEAR WIGAN.

The Wrightington Hospital is situated close to the high road between Standish and Parbold, about six miles north-west of Wigan; altitude 300 feet above sea level. The area of the estate is 159 acres. A scheme for the adaptation of the Hall as a nurses' home and the erection of new buildings to provide accommodation for 226 patients was adopted by the County Council and approved by the Ministry of Health towards the end of 1927. The first patients were admitted on the 14th December, 1931.

The accommodation provided is utilised as under :—

Adults : Three one-storey pavilions (two for men and one for women).	
• One pavilion contains 30 beds, and at one end for isolation a small ward for four beds and two single cubicles ; the other two pavilions each contain 31 beds for non-pulmonary cases and at one end cubicles for 10 combined cases of pulmonary and non-pulmonary tuberculosis	118 beds.
Children : Two one-storey pavilions for non-pulmonary tuberculosis ; each pavilion containing 44 beds, and at one end a ward for four beds, and two single cubicles for isolation on admission.....	
	100 beds.
Isolation block for outbreaks of infectious disease	8 beds.
	226 beds.

All the buildings are heated.

In addition to the patients' pavilions, there are the following buildings :—Treatment block, kitchen block, official block, power house, laundry, quarters for nurses and maids (modern portion of the Hall and an annexe), medical superintendent's house, seven cottages for male employees, outbuildings (utilised for garages, workshops, stores, etc.).

The water supply is obtained from a well ($1\frac{1}{4}$ miles distant), which is the property of the County Council. Sewage works are installed on the estate. The electric light is from the public supply.

The Lancashire Education Committee have kindly arranged for a lecturer to visit the institution to speak on social history and current events to adult patients; there are two part-time instructresses who teach handicrafts to both men and women. For the children there is a head teacher, with three assistants.

During the year, 143 patients received from the visiting dental surgeon, Mr. J. J. Ward, some form of dental treatment, particulars of which will be found in Chapter XXIV.

The weekly maintenance charge for 1937-38 was £3 0s. 10d. per patient; this includes 13s. 2d. for loan charges.

The average length of stay of patients at Wrightington during 1938 was as under :—

Patients discharged	.....	296 days.
Patients who died in the hospital	.....	161 days.
Observation cases discharged	.....	74 days.

Dr. Pask reports as follows :—

During the year, 283 patients were admitted and 258 were discharged; there were 27 deaths.

Table 35 on page 114 gives a list of the lesions of 247 patients suffering from tuberculosis who were discharged or died, and the immediate results of treatment.

In addition to the 247 patients seen in Table 35, 27 adults and 11 children (most of whom were admitted for observation purposes) were found to be suffering from non-tuberculous conditions. These included cases of osteo-arthritis, septic arthritis, congenital scoliosis, Perthe's disease, osteomyelitis, Brodie's abscess, ovarian cyst, hyperthyroidism, osteogenic sarcoma of ilium, hypernephroma of kidney with secondary growths, and carcinoma of colon.

TABLE 35.—*Condition on discharge of 247 patients suffering from tuberculosis.*

Lesion.	Adults					Children				
	Quies.	Imp.	Stat.	Worse	Died	Quies.	Imp.	Stat.	Worse	Died
Spine—										
Cervical	1	—	—	—	—	—	—	—	—	—
Dorsal	9	1	—	—	2	9	—	—	—	—
Dorso-lumbar	1	2	1	—	1	3	—	—	—	—
Lumbar	3	1	—	—	2	5	1	—	—	—
Sacro-iliac joint	3	3	—	—	—	—	—	—	—	—
Hip	4	3	1	—	1	13	1	—	—	1
Great trochanter of femur	1	—	—	—	—	—	—	—	—	—
Knee	3	2	—	—	—	5	1	1	—	—
Fibula	1	—	—	—	—	—	—	—	—	—
Ankle	2	—	—	—	—	—	—	—	—	—
Bones of foot	1	—	—	—	—	2	—	—	—	—
Shoulder	—	1	—	—	—	1	—	—	—	—
Elbow	1	—	—	—	—	—	—	—	—	—
Wrist	—	2	—	—	—	—	—	—	—	—
Bones of hand	—	1	—	—	—	1	3	—	—	1*
Sternum	—	—	—	—	—	1	—	—	—	—
Rib	1	—	—	—	—	—	—	—	—	—
Peripheral glands	4	4	—	—	—	12	—	—	—	—
Peritonitis, etc.	16	2	3	—	1	21	1	—	—	1
Lungs and pleura	2	—	1	—	—	—	—	—	—	—
Cerebellum	—	—	—	—	—	1	—	—	—	—
Genito-urinary	5	9	2	—	2	—	—	—	—	—
Abscess chest wall	2	1	—	—	—	—	—	—	—	—
Ischio-rectal abscess	—	1	—	—	—	—	—	—	—	—
Miliary tuberculosis	—	—	—	—	1	—	—	—	—	—
Multiple lesions	8	3	—	—	5	5	1	—	—	—
Combined pulmonary and non-pulmonary	8	11	1	—	9	—	—	—	—	—
Total	76	47	9	—	24	79	8	1	—	3
			156					91		

* Cause of death : Tuberculous meningitis.

The treatment of tuberculosis of the bones and joints remains for the most part conservative. The operation of arthrodesis of the hip has been performed in five cases during the year. There is an increasing tendency to operate at an earlier age than previously, but the indications for operation, fully set out in my report for 1936, remain the same. It is essential not to operate until the disease is reasonably quiescent.

CALCULI IN BONE AND JOINT TUBERCULOSIS.

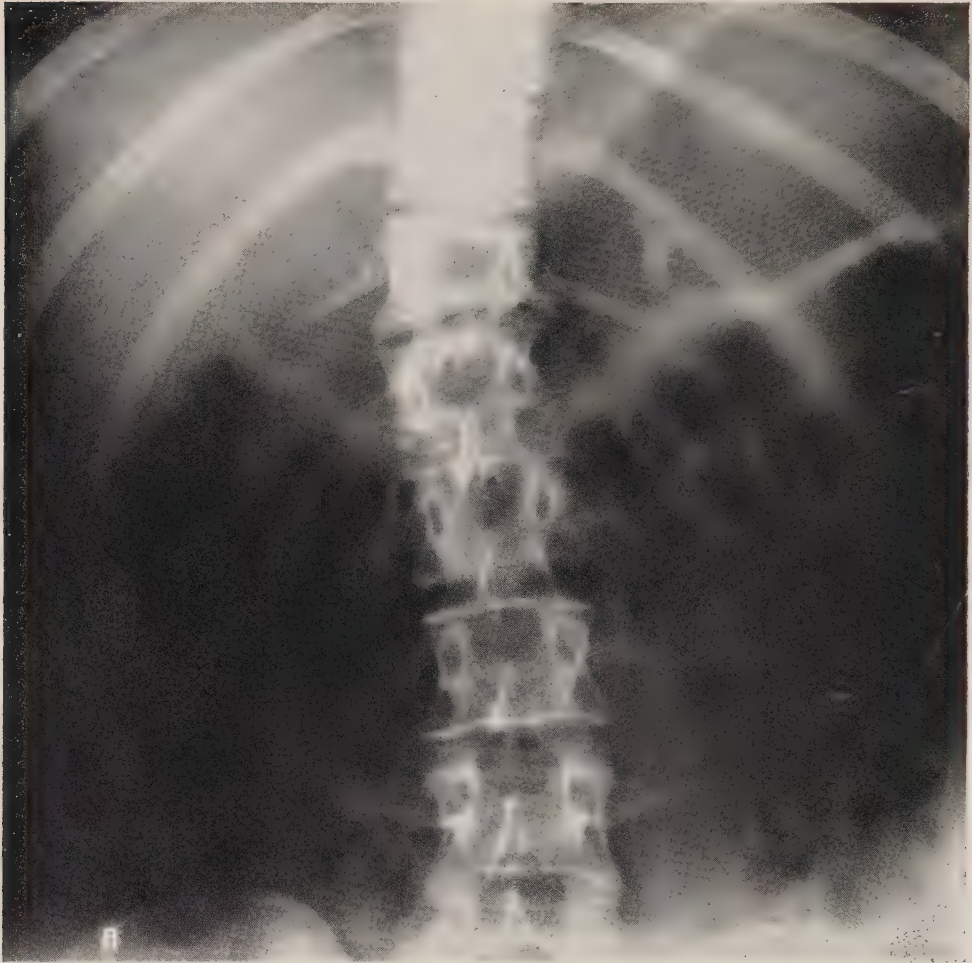


W.1(a).—J.C., male, aged 8 years. Skiagram, taken after 18 months' immobilisation on frame, shows five calculi (stones) in bladder.

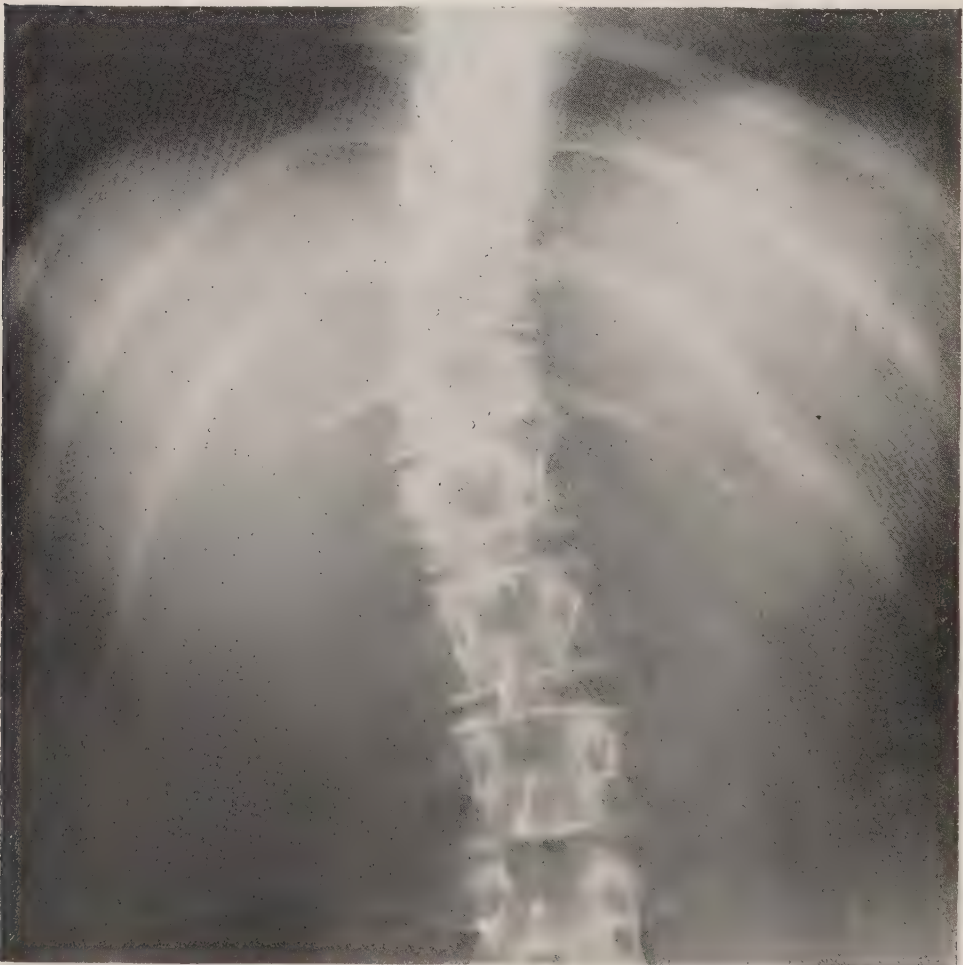


W.1(b).—Same patient. Photograph of the five calculi after removal from bladder.
(Skiagrams taken at Wrightington Hospital).

CALCULI IN BONE AND JOINT TUBERCULOSIS—*contd.*



W.2(a).—F.N., male, aged 21 years. Skiagram taken 16-4-34 shows an angular renal calculus in the left kidney immediately below the eleventh rib. This developed after 11 months' recumbency on a spinal box.



W.2(b).—Same patient. Skiagram taken 6-12-34 shows disappearance of the renal calculus eight months after patient had resumed the erect position and was getting about. No gravel was passed in the urine and the calculus dissolved *in situ*.

(Skiagrams taken at Wrightington Hospital).

The following is a list of operations performed during 1938 :—

Amputation (leg 5, foot 2), 7 ; appendicectomy, 2 ; arthrodesis (hip 5, knee 2), 7 ; curettage (uterus), 1 ; epididymectomy, 1 ; excision of glands of neck, 9 ; excision of growth on chest wall, 1 ; excision of head and neck of femur, 1 ; excision of ischio-rectal abscess, 1 ; excision of knee, 3 ; excision of sacro-iliac joint, 1 ; excision of tumour of hand, 1 ; exploration of kidney (congenital absence of kidney), 1 ; fixation of spine (Albee graft), 4 ; incision and curettage of chest abscess, 2 ; incision and curettage of Brodie's abscess of tibia, 1 ; lateral anastomosis for faecal fistula, 4 ; nephrectomy, 4 ; osteotomy femur (for knock-knee), 1 ; removal of ovarian cysts, 1 ; sequestrectomy ankle, 1 ; supra-pubic lithotomy, 1 ; tracheotomy, 1 ; transtrochanteric osteotomy, 1.

Minor operations :—Aspiration of abscess, 263 ; aspiration of chest, 17 ; circumcision, 1 ; curettage of gland, 2 ; cystoscopy, 15 ; incision of abscess, 13 ; lumbar puncture, 4 ; paracentesis abdomen, 2 ; removal of nail, 1 ; removal of nodule forearm, 1 ; sequestrectomy, 1 ; venesection, 1.

Four operations were performed for faecal fistula following an operation which had been done before admission to Wrightington. In three cases the fistula closed after a lateral anastomosis.

In one case an operation was performed for removal of stones from the bladder (see illustrations W.1(a) and W.1(b) here inserted). Calculi of the urinary tract are prone to develop in bone and joint tuberculosis owing to prolonged periods of recumbency. Various precautionary measures are adopted to prevent this—periodic turning of patients having due regard to the maintenance of rest to the affected part, with intake of excess of fluids. The reaction of the urine is tested weekly. With the prescribed diet at the hospital, it has been found that the urine is acid in reaction. Occasionally an alkaline urine is found, and then steps are taken to make it acid by giving ammonium chloride. If, in spite of precautionary measures, the formation of calculi actually occurs they usually disappear when the patient assumes the erect position (see skiagrams W.2(a) and W.2(b) here inserted). The remains may be seen in the form of “gravel” in the urine ; and sometimes they disappear without any visible evidence in the urine, presumably having undergone solution *in situ*. The actual number of cases requiring surgical treatment is very small. Calculous pyonephrosis and calculous anuria are two of the gravest complications. Two cases of the latter have occurred at Wrightington with complete recovery.

Mantoux tests are done as a routine on all children on admission, and 88 children were tested ; of these, 86 were positive and 2 negative. The negative cases had been sent in for observation purposes—one proved to be a case of haemangioma and the other Perthe's disease, thus showing the value of a negative test.

All patients of 15 years of age and under are immunised with diphtheria prophylactic (toxoid-antitoxin floccules) on admission. The 3-shot method is employed, 1 c.c. being given at weekly intervals. There has been no epidemic of diphtheria since this measure has been adopted. Occasional sporadic cases have occurred from time to time usually in cases recently admitted before the prophylactic had been given. The use of diphtheria prophylactic in institutions has removed the bugbear of epidemics of diphtheria.

All patients receive general light baths unless there is some definite contra-indication (*e.g.*, febrile and debilitated cases). The carbon arc lamps are used for this purpose—20-ampere lamps for initial exposures, followed by 30-ampere lamps and finally 75-ampere lamps. Sinuses are treated by means of focal light (*i.e.*, “Alpine Sun” mercury vapour lamp) commencing with an exposure of $2\frac{1}{2}$ minutes at a distance of 30 inches, gradually increasing the exposure to 5 minutes and reducing the distance to 12 inches. Lupus cases are treated with the Kromayer and Finsen-Reyn lamps.

During 1938 the following radiographs were taken :—Wrightington Hospital patients, 1,566 ; Wigan County Dispensary patients, 622. Radiography is absolutely essential in the diagnosis and treatment of tuberculosis of the bones and joints. One of its most important functions is to give information as to the progress of the disease under treatment. From it we have learned that quite often the disease in the early stage tends to progress, in spite of careful treatment, until stability has been reached. This is seen by taking serial radiographs. This point has not been sufficiently stressed in the past. As in pulmonary tuberculosis, it is quite impossible from radiography alone to express a definite opinion as to the quiescence of a lesion in a bone or joint, and the evidence seen in the radiographs must be taken in conjunction with the clinical findings (including blood sedimentation, temperature, pulse, weight, etc.). It is quite common to see recalcification, good definition of the lesion, and coarse trabeculation in the radiograph in cases that are doing badly with sinuses, high temperature, and sometimes amyloid disease ; this goes to show that radiography can be a good servant but a bad master.

During the year, 149 plasters were applied and 43 casts were taken for making celluloid supports. Forty-five patients attended the out-patient department (64 attendances) for diagnostic purposes, alteration of splints, and renewing of celluloid supports.

Eighteen post-mortem examinations were performed during the year. Sixteen were cases of tuberculosis, and in 10 of these (62 per cent.), the lungs were found to be affected in addition to the non-pulmonary lesion,

Tuberculosis of the kidney was present in 10 cases (62 per cent.). In all cases except one, multiple lesions were found at autopsy. In three cases evidence of amyloid disease was present and verified by the iodine test and microscopical examination. The two non-tubercular cases were : (1) Osteomyelitis of the sacro-iliac joint and great trochanter with amyloid disease, and (2) carcinoma of the splenic flexure of the colon in a man aged 24 years. The latter case presented considerable diagnostic difficulties. The diagnosis was confirmed by microscopic examination.

Laboratory work.—Examinations of the following specimens were made during the year in the hospital laboratory :—Sputum : hospital patients, 35 (positive 9, negative 26) ; dispensary patients, 547 (positive 80, negative 467). Urine, 33 ; pus 3.

Material which was sent away for inoculation tests and special pathological examination, consisted of :—

Guinea-pig inoculation :—Urine, 53 ; peritoneal fluid, 1 ; fluid from hip joint, 1 ; fluid from knee, 1 ; pus, 5.

Histological examination :—Spleen, 2 ; growth from chest wall, 1 ; material passed per rectum, 1 ; great trochanter, 1 ; liver, 1 ; gland neck, 2 ; Brodie's abscess, 1 ; lung, 1 ; colon, 1 ; tumour from forearm, 1 ; synovial granulation tissue, 1 ; synovial membrane knee, 1 ; supra-renal gland, 1 ; blood for blood-sugar estimation, 3 ; blood for Wassermann reaction, 11 ; urine, 5 ; diphtheria swabs, 172 ; blood for blood urea, 3 ; cerebro-spinal fluid, 5 ; faeces, 5 ; blood for culture, 1 ; blood for Widal, 2 ; water analyses, 8.

During the year we have continued the use of Lowenstein's medium for the culture of tubercle bacillus. We have, however, restricted its use to material from cases in which the diagnosis has not been certain. Most of the specimens of sputum have come from the Wigan County Dispensary, and all have been persistently negative on microscopical examination. The small number of specimens of urine cultured is due to the fact that we have found animal inoculation more reliable for this material. This is probably due to the difficulties of dealing with the large amounts of urine that have to be treated in order to obtain satisfactory results.

The following Table 36 shows the number of cultures made and the results :—

Type of material.	Number of cultures made.	Results.		
		Positive.	Negative.	Percentage Positive.
Pus	29	12	17	% 41·3
Sputum	11	3	8	27·2
Cerebro-spinal fluid	4	4	—	100·0
Urine	8	1	7	12·5
Total	52	20	32	38·4

Periodic visits have been made during the year by the consulting surgeons—Professor Platt, Professor McMurray, Mr. Wells and Mr. Bywater. Dental treatment has been provided by Mr. Ward. I should like to acknowledge the help given by these gentlemen, which is greatly appreciated.

Visitors to the hospital during the year included :—

County Councillor Canon A. Kershaw.

The Mayor and Mayoress of Accrington.

Dr. W. H. C. Patrick, Regional Medical Officer, Ministry of Health.

Dr. Muriel Bywaters, Board of Education.

Ashton-under-Lyne and District Tuberculosis Care Committee.

Members of M.Ch.(Orth.) class, Liverpool University.

Party of 36 from Standish (Health Week).

Dr. Bruce Hunt, Consulting Physician to the Repatriation Commission, Western Australia.

Dr. Philip Tsu-Yan Ch'iu, Peiping, China.

Dr. A. Soliman and Dr. A. Azmy, Tuberculosis Officers of the Egyptian Government.

The chaplains of the various denominations—Rev. C. E. Brett, Church of England ; Rev. J. Nelson, Nonconformist ; and Father Barry, Roman Catholic—have paid regular visits to the hospital to attend to the spiritual needs of the patients. Their visits have been greatly appreciated by the patients and staff.

Our best thanks are due to many friends of the institution who have visited Wrightington to entertain the patients. This year we have been especially fortunate in having more visitors than usual who have given numerous entertainments of a varied character.

The library is kept up-to-date by means of a generous annual grant from the County Tuberculosis Committee and gifts from the Red Cross Society. In addition to a good supply of general literature we have a large number of books of reference of a technical character, and the nursing staff have access to books pertaining to nursing, medicine, and surgery.

The kodascope is fully employed during the winter months ; fortnightly exhibitions of silent films are given in each ward, but I feel that silent pictures are becoming out of date, and a “ talkie ” apparatus would be much appreciated.

The educational classes for adults have been continued as in past years and this venture, which was originally somewhat of a pioneer effort, has been fully justified. The work has been commented upon in my previous reports. During the year some of the patients sent specimens of their handicraft for exhibition, and the following is a list of awards, which are very creditable in view of the fact that they were obtained in open competition :—

Cartmel Show (Handicraft Section), August, 1938 :

Number of entries, 8.	Number of prizes awarded, 19.
Subjects :	
Stool seating	First prize and special prize.
Poker work	Two special prizes.
Needlework	Two special prizes.
Knitting	One special prize.
Leather work	Third prize and two special prizes.

Keswick Show (Industries Section), September, 1938 :

Number of entries, 1.	Number of prizes awarded, 1.
Subject :	
Knitting	First prize.

As regards the work done in the hospital school, Mrs. Keyworth, the head teacher, reports as follows :—

Number of children admitted during the year	196
Number of children discharged during the year.....	99
Average number of children on register	94
Average age	7.7 years

The distribution of prizes for the Bird and Tree Competition took place on May 2nd, 1938 ; Dr. Pask presided, and the prizes were presented by Mrs. Pask. The senior boys and girls gave a varied programme of bird and tree songs and recitations, and the ceremony closed with the planting of two trees by children in the schoolroom garden. The proceedings were reported by a representative from the *Wigan Observer*.

Photographs of trees in the distance were taken with the aid of a mirror by a girl, aged 12, in bed on a frame. These were enlarged and exhibited by the Royal Society at the Annual Exhibition at their headquarters in London.

On July 21st, 1938, Dr. Muriel Bywaters, H.M. Inspector of Hospital Schools, visited the hospital and inspected the school.

The Lancashire Education Committee invited an exhibition of handwork from the hospital school for the Royal Lancashire Agriculture Show at Wavertree, Liverpool. Exhibitions of handwork were held in the schoolroom for visitors to the hospital.

The elementary school curriculum has progressed steadily throughout the year, much time being given to the numerous children, in particular the 11+ who are considerably below the average elementary school child on admission, many being unable to read. Given the necessary time, these children, thanks to the co-operation of all, gradually come into line with the others. Ambulant children are taught in the schoolroom, their curriculum including nature walks and observations, organised games, and natural movement dancing.

Mother Goose was given as the annual pantomime on December 21st, 1938.

During the year, four probationer nurses were successful in passing the Preliminary State Examination of the General Nursing Council before proceeding to general hospitals to complete their training. Ten probationer nurses passed the hospital-leaving examination in anatomy, physiology, hygiene, and nursing, and were awarded the hospital certificate.

In conclusion I should like to pay a tribute to my medical colleagues (Dr. Dobson and Dr. Coe), the matron (Miss Moseley), the nursing staff, and my clerk and steward (Mr. Watson), for their valuable help. Their work has been carried out in the true team spirit, and has contributed in no small measure to the efficient working of the hospital.

Details of work carried out at Wrightington during 1938 :—

Artificial pneumothorax—	
Inductions	1
Refills	6
Gold salts—	
Sanocrysin injections	27
Hydnocarpate oil injections	1
T.B. vaccine injections	320
Uroselectan B. injections	36
N.A.B. injections	14
Barium meals	6
Blood sedimentation tests (Cutler method)	2,120
Mantoux tests	88
X-ray work—	
Screen examinations	121
Skiagrams	1,566
Sputum examinations (positive 9, negative 26)	35

Numbers of patients afforded special treatment in the hospital for the first time during 1938 :—

Artificial pneumothorax—	
Attempted	1
Satisfactory	1
Gold salts (sanocrysin)	6
Hydnocarpate oil	1
T.B. vaccine	19
Uroselectan B.	27

Numbers of patients in the hospital on the 31st December, 1938, who were having special treatment :—

Artificial light	111
T.B. vaccine	6

TYPING OF TUBERCLE BACILLI FROM POST-MORTEM MATERIAL.

Post-mortem material from 24 cases has been sent to the Public Health Laboratory, Manchester, for typing of the tubercle bacillus. In six of these no viable tubercle bacilli were found. Of the remaining 18 cases, tubercle bacilli of the human type were found in 12 cases (66·7 per cent.) and of the bovine type in six cases (33·3 per cent.). The figures are too small from which to draw any definite conclusions, but the percentage of cases with bovine infection appears somewhat high.

The following Table 37 summarises the findings :—

Patient.	Tuberculous lesions on admission.	Tuberculous lesions at post-mortem.	Nature of specimen sent.	Type.	Amyloid disease.
J.W.L., male, aged 29 years	Left sacro-iliac joint	Lungs, sacro-iliac joint, spine, kidney, mesenteric glands, meningitis	Mesenteric gland	Human	Negative
W.H., male, aged 60 years	Right hip	Lungs, hip, epididymis	Pus from hip	Bovine	Negative
C.E., male, aged 18 years	Elbow	Lungs (T.B. plus), elbow (transferred to High Carley San.)	Sputum	Human	—
G.S., female, aged 58 years	Dorso-lumbar spine	Lungs, spine, meningitis	Gland	No growth	Negative
J.M., male, aged 29 years	Dorso-lumbar spine	Spine, liver, kidney	Pus from spine	Bovine	Positive
M.G., female, aged 29 years	Peritoneum	Peritoneum	Pus from pelvis	Bovine	Positive
W.H.M., male, aged 20 years	Spine, adenitis neck and groin	Spine	Pus from psoas abscess	Human	Positive
A.E., female, aged 35 years	Dorsal spine	Spine	Pus from spine	Human	Positive
W.F., male, aged 49 years	Lungs (T.B. plus), radius, knee	Lungs, elbow, hand, knee	Pus from elbow	Human	Positive
T.H., male, aged 49 years	Lungs, dorsal spine, hip	Lungs, spine, hip	Pus from hip	Human	Negative
M.M., female, aged 31 years	Lungs (T.B. plus), bowel	Lungs, caecum, mesenteric glands	Piece of lung	No growth	Negative
F.A.D., male, aged 49 years	Lungs (T.B. plus), spine	Lungs, spine	Pus from para-vertebral abscess spine	No growth	Negative
S.R., female, aged 19 years	Lungs (T.B. plus)	Lungs, mesenteric glands	Pus from gland	Bovine	Positive
H.T., male, aged 20 years	Pleurisy, peritoneum	Lungs, peritoneum, kidneys	Ascitic fluid	No growth	Negative
L.H., female, aged 14 years	Glands of abdomen	Lungs, mesenteric glands, liver, spleen, meningitis	Mesenteric gland	Human	Negative
R.E., male, aged 18 years	Elbow, lumbo-sacral disease	Lungs, elbow, sacro-iliac joint, spine, sacrum	Pus from psoas abscess	Human	Positive
J.R., male, aged 26 years	Lungs (T.B. plus), peritoneum	Lungs, mesenteric glands, intestines, supra-renals	Abdominal gland	Bovine	Negative
R.D., male, aged 27 years	Lumbar abscess	Lungs, kidneys, spine	Pus from lumbar abscess	Human	Negative
T.H.H., male, aged 56 years	Lungs (T.B. plus), ankle	Lungs, foot, liver, kidneys, intestines, mesenteric glands	Pus from foot	Human	Negative
R.R., male, aged 1 year	Wrist, foot	Lungs, foot, spleen, kidney, meningitis	Pus from foot	Human	Negative
G.E.W., male, aged 30 years	Prostate	Kidney, bladder	Pus from kidney	No growth	Negative
T.C., male, aged 40 years	Lungs (T.B. plus), shoulder, knee	Lungs, shoulder, knee, kidney, intestine	Pus from shoulder	Human	Negative
W.G., male, aged 46 years	Lungs (T.B. plus), abscess chest wall	Lungs, abscess chest wall	Pus from abscess	No growth	Negative
A.R., female, aged 65 years	Sacro-iliac joint, knee	Lungs, sacro-iliac joint, knee, finger, intestine	Pus from knee	Bovine	Negative

It will be seen that all the cases except two were adults. The two children were infected with the human type of bacillus—both died of tuberculous meningitis—and in both the family history as regards tubercle was negative.

The six cases of infection with the bovine type occurred in adults, and in four the lungs were affected in addition to the non-pulmonary lesions. Tubercle bacilli were present in the sputum before death in two cases. It is interesting to note that the two oldest patients in the series were infected with the bovine type of bacillus.

WIGAN COUNTY DISPENSARY AREA.

Area (estimated population 108,942) embraces Ashton-in-Makerfield, Hindley, Ince-in-Makerfield, and Wigan Rural districts.

Dr. Pask reports :—

New cases examined during the year numbered 427, of which 53 were diagnosed as pulmonary tuberculosis (35 positive sputum) ; this is a gratifying decrease in numbers as compared with the 1932 figures, when almost twice this total was recorded. The number of cases of non-pulmonary tuberculosis taken on the register was 73 (including 43 gland cases)—a slight increase on last year's number.

The specimens of sputum examined numbered 547 (80 positive, 467 negative) ; 61 artificial pneumothorax refills were given to 11 individual patients ; and x-ray examinations numbered 1,187, including 565 screenings.

Lipiodol injections have been continued during the year, mostly for cases of suspected bronchiectasis. All the patients, numbering 19, were investigated as out-patients, and in no instance was any ill-effect found to result from this practice. Radiographs W.3(a) and W.3(b) are here reproduced showing the result of a lipiodol injection.

Skin test. The Vollmer patch test has been used during the year. While not so reliable as the intradermal test (Mantoux), the ease of its application makes it useful, especially in young children. An investigation was carried out at Wrightington Hospital where 40 patients, known to be positive reactors to 1/1,000 Mantoux, had the Vollmer patch test applied with 80 per cent. positive results.

ATELECTASIS DUE TO BRONCHIAL STENOSIS.



W.3(a).—J.F., male, aged 14 years. Skiagram taken 8-10-38. Atelectasis of left lung which is opaque. Heart is drawn completely over to left and trachea is displaced to left. (A similar picture was obtained from this patient 10 years previously).



W.3(b).—Same patient. Skiagram taken 18-10-38 after lipiodol by the oral method. There is hold-up of the lipiodol due to blocking of left main bronchus. Bronchoscopic examination was done by Mr. Edwards at High Carley Sanatorium, who reported as follows : " About $\frac{1}{2}$ in. down left bronchus was a circumferential broncho-stenosis with a tiny hole in the centre through which secretion occasionally came. The constriction was smooth and somewhat congested but firm and undilatable. It appears to be an extra-bronchial constriction."

(Skiagrams taken at Wrightington Hospital).

RIGHT.

LEFT.

Skin cases continue to be treated at a special session, general and local light treatment being employed as well as spiking and eulykol injections. Fifteen such cases were undergoing treatment at the end of the year. General light clinics are held twice weekly, at which the majority attending are gland cases. Light treatment was given to 127 patients during 1938, 58 remaining under treatment at the end of the year.

Dr. Deane has made a survey of 239 cases referred to the dispensary for examination as suspects of pulmonary tuberculosis. Of 53 cases diagnosed as tuberculous, 17 had blood-spitting as a symptom (10 in large amounts and 7 with only slight staining of the sputum). It is thus seen that 32 per cent. of these definite cases had some blood-spitting.

Of the remaining 186 cases, in which no evidence of tuberculosis was found, blood-spitting had occurred in 51 instances (27 per cent.) ; in only 6 of these had it been of large amount, and in the other 45 there was staining of the sputum only. Practically all of these patients were kept under observation at the dispensary for three months, and 11 were sent to an institution for a period of observation.

In the group of 51 non-tuberculous patients with haemoptysis, investigation showed bronchiectasis as the cause in 19 instances—a greater number than the total tuberculous patients with haemoptysis; bronchitis in 7; bleeding gums, 2; cardiac, 2; pneumonitis, 4; pharyngeal bleeding, 2; aneurysm, 1; asthma, 1; and in 13 cases the cause was not known.

Dr. Deane, my assistant, and the health visitors, Miss Walters and Miss Evans, have as usual carried out their duties in a most conscientious manner.

Summary of Dispensary Work.

Number of cases under supervision on 31st December, 1938

(Definitely tuberculous, 628; doubtful, 6) 634

Examinations of <i>new persons</i> and <i>new contacts</i> for diagnosis.	Re-visits or re-attendances of " <i>old</i> " <i>cases</i> and " <i>old</i> " <i>contacts</i> .
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Examinations by tuberculosis officers at—

Patients' homes	93	282
Wigan Dispensary	334	1,422

Attendances at the Wigan Dispensary for artificial light treatment (127 patients)	4,385
Attendances for artificial pneumothorax treatment (11 patients)	60
Attendances for eulykol (hydnocarpates) treatment	91
Care committee meetings attended by—	
(a) Tuberculosis officers	3
(b) Tuberculosis health visitors	4
Visits by tuberculosis officers to sanatoria, and pulmonary, special, and public assistance hospitals	21
Special visits by tuberculosis officers (<i>i.e.</i> , interviews with medical officers of health, general hospital officials, &c.)	1
Visits by dispensary nurses to patients' homes—	
Routine visits.....	2,654
Application of surgical dressings	164
Adjustment of splints and surgical appliances	201
Other actual nursing	101
Sanitary defects reported to the local medical officers of health	9
Sanitary defects which after notification were remedied	7
Disinfections carried out by local sanitary authorities	99
Percentage of new cases referred by medical practitioners, &c., to tuberculosis officers for an opinion as to diagnosis or treatment <i>before</i> statutory notification	95%

XX.—CHADDERTON PULMONARY HOSPITAL, NEAR OLDHAM.

<i>Visiting Medical Superintendent</i>	.....	.....	DR. E. T. HOLDEN.
<i>Matron</i>	.....	.....	MISS I. FELSTEAD.

An agreement was made on the 1st October, 1919, with the Chadderton, Royton, and Crompton Joint Hospital Board for the use of the buildings at Racefield, erected as a smallpox hospital, for the treatment of patients suffering from pulmonary tuberculosis. Accommodation is provided for 44 female patients. The County Council are under an obligation to vacate the premises in case of an epidemic of smallpox.

The weekly maintenance charge for 1937-38 was £2 4s. 9d. per patient.

The average length of stay of patients at Chadderton during 1938 was as under :—

Patients discharged	.....	.....	.....	.....	215 days.
Patients who died in the hospital	.....	.....	.....	.....	181 days.
Observation case discharged	.....	.....	.....	.....	66 days.

Dr. Holden reports as follows :—

During the year, 77 patients were admitted, 54 were discharged (including seven who were transferred to other institutions), and 22 died ; in addition, two cases were sent in for observation and diagnosis and one was discharged. Of the 22 patients who died, eight had been in the hospital under five weeks.

The work of the hospital was carried out on similar lines to previous years. The majority of the new patients admitted were in an advanced stage of the disease and it was impossible to do anything for them other than the alleviation of symptoms.

Owing to the hopeless prognosis in many cases the scope for special treatment was necessarily limited, but where possible the following have been used :—Artificial pneumothorax, gold salts (sanocrysin) and nordanin. The Apneu-Collison inhaler has continued to prove of value as an adjuvant.

Artificial pneumothorax. Sixteen patients were treated by this method during the year. In five instances the treatment had to be abandoned as unsatisfactory, and three cases were given gold salts in addition.

Gold salts. Sanocrysin was used for 19 patients, the average amount given during a complete course being 6.1 grammes. In six cases the treatment had to be abandoned for the following reasons :—Albuminuria, 1 ; dermatitis, 1 ; diarrhoea, 1 ; unsatisfactory general condition, 3.

Nordalin. Six of the younger patients who were unsuitable for any other treatment were given nordalin. I am satisfied that the tablets have a beneficial effect on this type of case.

Details of work carried out at Chadderton during 1938 :—

Artificial pneumothorax—	
Inductions	16
Refills	224
Gold salts—	
Sanocrysin injections	326
Mantoux tests	3
X-ray work—	
Screen examinations	364
Skiagrams	133
Sputum examinations (positive 241, negative 282)	523
Miscellaneous (aspirations, etc.)	7

Numbers of patients afforded special treatment for the first time during 1938 :—

Artificial pneumothorax—	
Attempted	16
Satisfactory	11
Unsatisfactory	5
Gold salts (sanocrysin)	19
Nordalin	6

Numbers of patients in the hospital on the 31st December, 1938, who were receiving special treatment :—

Artificial pneumothorax	5
Artificial pneumothorax and gold salts (sanocrysin)	1
Gold salts (sanocrysin)	4
Nordalin	4

Dental treatment. It is rare to find a patient admitted with natural teeth in a sufficiently good condition not to need some form of dental attention. A healthy mouth is important if the maximum benefit is to be derived from institutional treatment, and there is no doubt that the work done by our dentist, Mr. J. H. Walker, has been amply justified by the results.

Details of the dental treatment given during 1938 are as follow :—

Number of patients treated, 40 ; new dentures provided—complete sets, 10 ; partial sets, 1 ; repairs to dentures, 3 ; extractions, 122 ; fillings, 11 ; scalings and cleanings, 5 ; other operations, 49 ; inspections, 67.

Occupational therapy. Owing to the large number of patients who are in bed all day there is little scope for occupational therapy. The few who are able to do such work are given light tasks, *e.g.*, cleaning brasses, silver, etc., and helping generally in the wards.

The recreation hut, in which the " up " patients spend much of their time, has been improved by additional furniture. Recreation facilities are as varied as possible, and special attention is paid to the needs of those unfortunate patients who have to endure the monotony of prolonged rest in bed. Good use is always made of the library, which is kept well stocked with a variety of literature for every taste ; 659 books were lent out during the year.

Concerts, whist drives, cinematograph shows, etc., were held frequently and there was a very successful garden party in June, followed by the patients' annual trip—this year to Southport.

On June 3rd, the Chadderton, Royton and Crompton Joint Hospital Board held their annual meeting at the hospital and took the opportunity of inspecting the hospital and grounds ; and on September 27th we were honoured by a visit from County Councillors E. Clegg and J. Kershaw.

The religious needs of the patients have been attended to as in previous years by the local clergy of the various denominations, and I wish to express my thanks to these reverend gentlemen for their ministrations.

During the year it has been difficult to obtain suitable staff—a complaint which I understand is general at the present time. We are under an added handicap at Chadderton in that our probationer nurses are unable to improve their prospects by preparing for the examinations of the Tuberculosis Association. The training they obtain is equally as good as in hospitals with a slightly larger number of beds, and I venture to suggest that the policy of a stipulated number of beds, irrespective of the work done, is not only short-sighted in view of present-day needs, but will eventually result in the extinction of the smaller hospitals devoted solely to the treatment of pulmonary tuberculosis. The nursing journals are packed with advertisements for probationer nurses, and we cannot expect a girl with ambition to apply for a position which is a blind alley.

The kindness of the County Tuberculosis Committee in providing grants towards the provision of special fare at Christmas, books for the patients and staff, and the hire of cinematograph films is much appreciated. We have also to thank the concert parties who have so generously given their time to entertaining the patients, and Dr. Fletcher for his gifts of books and periodicals.

My colleagues of Dispensary Area No. 3 have, as always, been most helpful and I much appreciate their co-operation. To the matron (Miss Felstead), Sister Goodall, and the senior staff a special word of thanks is due for their loyalty and for the excellent way in which they have assisted me to carry on the work of the hospital.

XXI.—HEATH CHARNOCK PULMONARY HOSPITAL, NEAR CHORLEY.

Visiting Medical Superintendent DR. J. RIGBY.

(Dr. Rigby is also medical officer to the Chorley Joint Hospital Board, and the medical officer of health of the Chorley Rural District).

Matron MISS H. SINCLAIR.

In 1914, by agreement with the Chorley Joint Hospital Board, the County Council leased $1\frac{1}{2}$ acres of land adjoining the Board's isolation hospital on which they erected, equipped, and furnished two pavilions, dining hall, and quarters for the staff.

During 1937, the County Council converted the original staff accommodation into a treatment room, x-ray room, dark room, and patients' reading room, and the Joint Board enlarged the administrative block of the adjoining isolation hospital to accommodate the pulmonary hospital staff.

The Joint Board are, by agreement, responsible for the maintenance, nursing, and treatment of the patients, the County Council paying to them the cost thereof.

Accommodation is provided for 39 female patients—31 in the two pavilions, and 8 in wooden sleeping shelters.

The weekly maintenance cost for 1937-38 was £2 1s. 7d. per patient.

The average length of stay of patients at Heath Charnock during 1938 was :—

Patients discharged	.....	202 days.
Patients who died in the hospital	.....	110 days.

Dr. Rigby reports as follows :—

During the year, 62 patients were admitted to the hospital, 41 were discharged (30 of whom had improved), and 21 died.

Artificial pneumothorax was considered suitable for two patients ; in one case treatment was partially successful, but had to be discontinued on account of fluid in the pleura.

One case was admitted with pleuritic effusion, and, after repeated aspirations, made a good recovery.

Gold treatment, in the form of solganal, was received by 10 patients. A prolonged course of bi-weekly injections, averaging 45 per patient, was given with encouraging results, the patients gaining weight and their chest condition improving. I have found, however, that a stage is reached when the patient ceases to improve if the injections are continued too long. In two instances diarrhoea was the cause of treatment being abandoned, but no case of skin rash occurred.

At the hospital 111 skiagrams were taken and 66 screen examinations were made ; the number of specimens of sputum examined totalled 164, of which 108 were positive for tubercle bacilli.

The Vicar of Adlington, the Rev. G. Gamble, and the Rev. F. Formby have been consistent visitors, and our thanks are due to them for ministering to the spiritual needs of the patients.

Social activities during the year were somewhat curtailed on account of the number of serious cases admitted for which medicinal treatment is of little avail. The garden party and the Christmas party were held as in previous years. Motor trips to Blackpool and Morecambe during the summer months were enjoyed by those who were able to undertake the journeys.

The patients have, I think, appreciated the kindly treatment and the interest taken by the staff in making their stay in the hospital as pleasant as possible.

XXII.—COST OF THE TUBERCULOSIS SCHEME.

The report so far has dealt entirely with measures for the prevention and treatment of tuberculosis, and with vital statistics, but it is also desirable that the cost of the scheme should be recorded.

The following statement shows the expenditure under the principal headings incurred by the Lancashire County Council on the operation of their tuberculosis scheme :—

	1938-39 £	Per cent. of total.
1. Maintenance of 25 dispensaries (including artificial light departments, x-ray plants, salaries of staff, provision of special nourishment) and home supervision of 7,493 patients	52,477	24.1
2. Accommodation at sanatoria and hospitals provided, leased, or rented by the County Council for the treatment of patients suffering from tuberculosis (average number of beds occupied, 967)	148,477	68.1
3. Patients' travelling expenses (proceeding to and from institutions, and for special treatment at dispensaries)	3,095	1.4
4. Administration expenses (including salary of Central Tuberculosis Officer and staff, travelling expenses, printing, stationery, proportion of cost of County Architect's, Clerk of Council's and County Treasurer's departments) and research	14,001	6.4
Total gross expenditure	£218,050	100.0
Less income from beds rented to other authorities, Ministry of Pensions in respect of tuberculous ex-service men, sale of produce, rents from land, etc.	6,930	
Total net expenditure	£211,120	
Equivalent rate in the £	4.95d.	

It should be remembered that tuberculosis is one of the services aided by the General Exchequer Contribution which succeeded the 50 per cent. grant discontinued by the Local Government Act of 1929. It is not possible to state what proportion of the General Exchequer Contribution is in respect of tuberculosis expenditure.

The weekly maintenance charges for patients at the several sanatoria and hospitals of the Lancashire County Council are included in the report for the particular institution.

XXIII.—CARE WORK.

A full review of the care scheme applicable to the Administrative County was contained in my annual report for 1937. As no change in principle has occurred, I do not propose this year to detail the scheme.

VOLUNTARY CARE COMMITTEES.

A list of the existing voluntary care committees, the populations served, the number of patients assisted, and the amounts expended on assistance during 1938 are given in the following Table 38 :—

Name of committee.	Estimated population served 1938.	Number of patients assisted during 1938.	Expenditure on patients during 1938.
			£ s. d.
* Ashton-under-Lyne and District	68,303	65	186 5 9
Chorley and District	73,556	36	160 10 1
Earlestown, Newton, and District	22,716	9	15 19 8
Farnworth and District	68,336	24	70 10 0
Horwich	14,920	14	116 16 0
Huyton-with-Roby District	29,500	22	51 6 8
Lancaster and District	97,273	19	129 0 10
Leigh and District	99,480	126	180 9 7
* Prescott and District	23,152	14	93 17 4
Prestwich	32,410	1	0 18 0
* Radcliffe, Whitefield and District Relief Fund for Consumptives	39,320	21	87 7 2
Stretford Guild of Help	59,670	48	93 18 6
Westhoughton	14,980	13	49 14 8
Widnes	43,700	68	61 12 1
Total	687,316	480	£1,298 6 4

* Relates to year ended 31st March, 1939.

COUNTY CARE FUND.

The following Table 39 shows the position of the remainder of the dispensary areas not covered by voluntary care committees and the amount of the grants, calculated on population, made by the County Tuberculosis Committee :—

Dispensary area.	Estimated population 1938.	Total population covered by care committees 1938.	Balance of population to come under dispensary organisation 1938.	Amount of grant available for area not covered by care committees.
No. 1	258,895	185,749	73,146	£ 74
No. 2	319,084	—	319,084	333
No. 3	384,058	140,033	244,025	249
No. 4	371,926	242,466	129,460	132
No. 5	310,025	119,068	190,957	191
Furness	38,122	—	38,122	39
Fylde	89,548	—	89,548	92
Wigan County	108,942	—	108,942	113
Total	1,880,600	687,316	1,193,284	£1,223

Any grant made by the tuberculosis officer to a tuberculous patient is reported to the local Guardians Committee of the Public Assistance Committee if the patient or family are already receiving relief from the Public Assistance Committee.

During 1938, assistance (mainly in the provision of milk, groceries, and clothing) was afforded through the dispensary staff to 285 patients, the amount expended being £773 15s. 7d.

CO-OPERATION WITH OTHER BODIES.

To prevent overlapping between the County Tuberculosis Committee and the Public Assistance Committee in the granting of relief to necessitous persons, the consultant tuberculosis officer of each dispensary area is authorised to co-operate with the officials of the Guardians Committees by making recommendations direct concerning each necessitous or destitute tuberculous patient and any dependants in need of assistance which cannot be, or is deemed inadvisable to be, provided or arranged for by the tuberculosis care organisation.

The Unemployment Assistance Board are responsible for assisting able-bodied unemployed persons formerly dealt with by the Public Assistance Committee, and their machinery of administration is now operating freely. Here again, co-operation takes place between the consultant tuberculosis officers of the dispensary areas and the area officers of the Board.

Assistance is given by the Public Assistance Committee in kind and by the Unemployment Assistance Board in money.

VISITS BY VOLUNTARY CARE COMMITTEES.

The following visits of voluntary care committees to County sanatoria and hospitals have taken place :—

Ashton-under-Lyne and District Care Committee	Wrightington Hospital	10th May, 1938.
Horwich Care Committee	Elswick Sanatorium	11th June, 1938.
	Heath Charnock Pulmonary Hospital	24th June, 1939.

The County Tuberculosis Committee encourage these visits as they enable the members of the care committees to see at first hand the institutional side of the scheme.

XXIV.—DENTAL TREATMENT.

Patients eligible for dental treatment are those who, in the opinion of the medical superintendent or the tuberculosis officer, are unable to derive full benefit from their treatment for tuberculosis owing to defective teeth. Patients already covered by dental schemes of other bodies, *e.g.*, school children at home and tuberculous pensioners, are excluded from benefit. For insured persons who are tuberculous many approved societies make a contribution towards the cost of dental attention required.

At the following County sanatoria and hospital the dental work is carried out by a visiting dentist :—High Carley, Oubas House, Elswick, and Wrightington. At the other County institutions, *viz.*, Chadderton, Heath Charnock, Lancaster, Peel Hall, Withnell, and Wolstenholme Pulmonary Hospitals, a local dentist is called upon to visit as and when required.

The statement below shows the dental work carried out during 1938, under the scheme approved by the County Council :—

TABLE 40.

Institution.	Number of patients who received dental attention.	New dentures provided.		Repairs to dentures.	Ex-trac-tions.	Fillings	Scalings and clean-ings.	Other opera-tions.	Inspec-tions.
		Com-plete sets.	Partial sets.						
High Carley	127	15	15	4	234	20	451	119	138
Oubas House(Children)	11	—	—	—	12	—	—	4	7
Elswick	66	5	9	5	212	18	76	80	315
Wrightington	143	19	3	11	398	32	404	59	542
Other sanatoria and hospitals	192	18	7	10	463	18	13	50	108
Dispensary patients	52	22	16	8	440	4	4	1	—
Total	591	79	50	38	1,759	92	948	313	1,110

The dental scheme, considering the benefit derived by the patients, has proved economical, and continues to be justified.

XXV.—INSTITUTIONAL ACCOMMODATION.

On the 31st December, 1938, there were 934 beds at sanatoria and hospitals occupied by County patients, as compared with 932 at the end of 1937. The number of beds occupied by pulmonary cases worked out at 85 per 100 pulmonary deaths ; for non-pulmonary tuberculosis the proportion was 141 beds per 100 non-pulmonary deaths.

Table 41 below gives a summary of the beds occupied at the end of 1938 at the several types of institutions, the names of which are contained in Appendix XI :—

Type of institution.	Pulmonary tuberculosis.		Non-pulmonary tuberculosis.		Total.
	Adults.	Children.	Adults.	Children.	
Institutions for pulmonary tuberculosis	601	31	—	11	643
Training colonies	6	—	4	—	10
Institution with accommodation for combined tuberculosis	16	7	—	—	23
Beds occupied by observation cases	12	10	5	10	37
Institutions for non-pulmonary tuberculosis	—	—	105	116	221
Total	635	48	114	137	934
	683		251		

The number of beds occupied fluctuates during the course of the year, there being a greater demand for beds in the summer than in the winter. In July, 1938, the beds occupied totalled 976, and in July, 1939, 973.

The number of beds in occupation by County patients on the 31st December of each year from 1926 to 1938 was :—1926, 825 ; 1927, 819 ; 1928, 858 ; 1929, 874 ; 1930, 906 ; 1931, 875 ; 1932, 931 ; 1933, 875 ; 1934, 911 ; 1935, 914 ; 1936, 944 ; 1937, 932 ; and 1938, 934.

Of the 934 beds occupied, 715 were in sanatoria or hospitals belonging to the County Council, and 219 were in non-County institutions.

Of the 683 pulmonary patients in institutions at the end of the year, 82 per cent. were classified as “ T.B. plus,” that is, sometime during treatment their sputum was positive.

The number of patients waiting for institutional treatment, averaged at monthly periods during 1938, was as follows :—

	Adults.	Children.
Sanatoria	20	2
Pulmonary hospitals	22	—
General hospitals	5	3
Special hospitals	17	12

A return was obtained from the medical superintendents of public assistance hospitals of the number of patients suffering from tuberculosis chargeable to the Lancashire County Council who were in such hospitals on the 31st December, 1938. The following statement has been prepared from the returns so furnished :—

TABLE 42.

	Patients in public assistance hospitals on 31st December, 1938.			
	Adult males.	Adult females.	Children.	Total.
Pulmonary tuberculosis	11	6	—	17
Non-pulmonary tuberculosis	3	4	3	10
				27

The foregoing total of 27 cases (compared with 33 at end of 1937) in public assistance hospitals contains those tuberculous patients whose mental condition, or other complication, does not permit of their being treated in sanatoria and hospitals. Every effort is made to transfer as soon as possible patients who require special treatment for tuberculosis to the sanatoria and hospitals provided for such treatment.

Further particulars of the residential treatment for tuberculous patients in public assistance hospitals are given in Appendix VII.

XXVI.—TREATMENT, OCCUPATIONAL TRAINING, AND VILLAGE SETTLEMENTS.

A complete tuberculosis scheme has facilities for sending carefully selected patients to village settlements where they can undergo a probationary period of treatment combined with training to fit them to live with their families in cottages forming part of the village settlement, or, if single, to enter the hostel in such settlement. The main factors to be considered when making the selection are : The inadvisability of the patient returning to his normal occupation, the unsuitability of the home circumstances of the patient, temperamental suitability, the medical condition, age of the patient, and the likelihood of the patient and family to become successful settlers.

So far, the principal village settlements established in England are :—Papworth Village Settlement, Cambridge ; British Legion Village, Preston Hall, Aylesford, Kent ; and Barrowmore Tuberculosis Sanatorium and Settlement, Great Barrow, Chester. Arrangements exist for County patients to be sent to each of these settlements upon agreed terms, and the following statement shows the number who have entered the settlements and the number who still remain :—

TABLE 43.

Name of settlement.	Number of patients who entered the settlement to 31-12-38.	Number of patients who left the settlement.	Number of patients who died in the settlement.	Number of patients in the settlement on 31-12-38.
Papworth Village Settlement	3	—	2	1
British Legion Village	4	1	1	2
Barrowmore Tuberculosis Sanatorium and Settlement	25	8	7	10

A village settlement with its associated workshops, seeking orders in the open market at competitive rates makes this aspect of a settlement similar to a large business with consequent commercial risks. It is generally agreed that local authorities, owing to methods of public finance, to mention but one factor, are unable themselves to manage village settlements, hence co-operation with settlements under the control of voluntary bodies is advisable.

On the 1st July, 1936, revised arrangements with the Committee of the Barrowmore Tuberculosis Sanatorium and Settlement were adopted concerning the admission of County patients to the sanatorium, industries, and settlement.

The arrangements embrace the following conditions :—

SANATORIUM SECTION.—The maintenance charge to accord with the annual return to the Ministry of Health.

INDUSTRIES.—Patients and potential settlers of commercial value in the industries to be charged for at a lower maintenance rate.

SETTLEMENT.—Payment at a flat rate (£1 per week for married men and 10s. per week for unmarried men) for a period of five years, with the proviso that any patient relapsing and re-entering the sanatorium section should be paid for at the maintenance rate applicable to sanatorium patients. The return to the normal population of patients who have recovered from tuberculosis, including the possibility of a rehabilitation grant by the County Council to any recovered patient leaving the settlement.

Although settlement facilities are important in a tuberculosis scheme, the proportion of patients dealt with is very small. At the most it can be said that the proportion of sanatorium patients suitable for settlement will not exceed 5 per cent.

Experience shows that many patients are disinclined to leave the locality in which their homes are situated to enter with their families a village settlement many miles away.

In addition to patients who receive training in a workshop preparatory to entering a settlement and to those who receive treatment and undertake work as occupational therapy, arrangements exist for suitable patients, both pulmonary and non-pulmonary, to receive training in a definite occupation in order to fit them to return to useful employment. Patients sent for such training combined with treatment are youths who have had little or no employment and who require occupational training under sanatorium conditions. The following statement shows the number of patients who have been afforded training combined with treatment :—

TABLE 44.

Name of institution.	Number of patients admitted to 31-12-38.	Patients discharged.		Number of patients undergoing training on 31-12-38.
		Training completed.	Training terminated before completion of course.	
Burrow Hill Sanatorium Colony	11	4	6	1
Derwen Cripples' Training College	12	5	4	3
St. Vincent's Orthopaedic Hospital	2	1	1	—

Here again every care has to be taken in selecting patients to undergo training, as much public money can be expended in attempting to train persons who prove to be unsuitable.

HANDICRAFTS.

At the Wrightington Hospital, children and adults are trained in handicrafts by the teachers and the instructresses. When the adult patients return to their homes, it is known that a number of them continue the work they have learnt and are able to sell the articles they have made. The medical superintendent of the Wrightington Hospital reports that ex-patients are known to be benefiting by the handicrafts taught at the hospital. The following are the subjects in which instruction is given : Women—making of artificial flowers and jewellery, needlework, embroidery, hand-painted glass, decorated earthenware jugs, knitted toys, and leather work ; men—french polishing, stool seating, poker work, leather work, jewellery, and making door mats. Thus, the handwork which the patients learn at Wrightington is definitely worth while, both from the point of view of occupying them during their treatment and also as a means of supplementing their income after discharge.

XXVII.—HOME TREATMENT AND DISPENSARY TREATMENT OR SUPERVISION.

All notified cases of tuberculosis while at home are under the supervision of the tuberculosis officers and tuberculosis health visitors, in addition to the treatment that may be obtained from their medical attendants. Ordinary medical treatment at dispensaries (as distinct from special treatment such as artificial light and artificial pneumothorax) has never been undertaken, unless the patient has no doctor. The number of consultations with medical practitioners in 1938 was as follows :—Personal, 560 ; otherwise, 7,427 ; total, 7,987.

APPENDIX I.

DEATH-RATES for 1938 from tuberculosis in 109 urban and rural districts in Lancashire, and in the 8 County dispensary areas.

County district.	Estimated, population 1938.	Pulmonary tuberculosis.			Non-pulmonary tuberculosis.	
		Number of deaths, 1938.	Death-rate per 1,000 of population, 1938.	Average death-rate 5 years, 1933-37.	Number of deaths, 1938.	Death-rate per 1,000 of population, 1938.
URBAN.						
Abram	6,129	1	0·16	0·42	—	—
Accrington (B)	39,570	18	0·45	0·48	4	0·10
Adlington	4,024	—	—	0·43	—	—
Ashton-in-Makerfield	19,440	8	0·41	0·38	1	0·05
Ashton-under-Lyne (B)	48,540	32	0·65	0·66	4	0·08
Aspull	6,577	5	0·76	0·55	1	0·15
Atherton	20,590	8	0·38	0·35	2	0·09
Audenshaw	11,870	7	0·58	0·48	2	0·16
Bacup (B)	19,660	9	0·45	0·58	1	0·05
Barrowford	4,931	—	—	0·19	—	—
Billinge and Winstanley	5,740	2	0·34	0·51	—	—
Blackrod	3,260	2	0·61	0·34	1	0·30
Brierfield	7,183	5	0·69	0·47	1	0·13
Carnforth	3,082	2	0·64	0·37	—	—
Chadderton	30,270	15	0·49	0·45	4	0·13
Chorley (B)	30,140	13	0·43	0·37	4	0·13
Church	5,485	4	0·72	0·50	—	—
Clayton-le-Moors	7,084	4	0·56	0·24	—	—
Clitheroe (B)	11,260	2	0·17	0·34	—	—
Colne (B)	21,960	12	0·54	0·69	4	0·18
Crompton	13,360	6	0·44	0·51	1	0·07
Crosby (B)	55,780	33	0·59	0·67	5	0·08
Dalton-in-Furness	10,440	5	0·47	0·44	—	—
Darwen (B)	31,850	17	0·53	0·38	3	0·09
Denton	21,700	11	0·50	0·51	3	0·13
Droylsden	23,710	14	0·59	0·65	4	0·16
Eccles (B)	42,550	27	0·63	0·51	6	0·14
Failsworth	17,480	8	0·45	0·68	3	0·17
Farnworth	27,910	11	0·39	0·44	2	0·07
Fleetwood (B)	24,390	10	0·41	0·58	3	0·12
Formby	8,563	4	0·46	0·55	2	0·23
Fulwood	11,160	3	0·26	0·15	1	0·08
Golborne	14,040	4	0·28	0·49	—	—
Grange-over-Sands	2,415	—	—	0·84	—	—
Great Harwood	11,040	3	0·27	0·33	3	0·27
Haslingden (B)	15,220	2	0·13	0·32	—	—
Haydock	10,820	5	0·46	0·41	1	0·09
Heywood (B)	25,290	10	0·39	0·51	3	0·11
Hindley	20,230	7	0·34	0·61	2	0·09
Horwich	14,920	10	0·67	0·35	2	0·13
Huyton-with-Roby	29,500	27	0·91	0·52	3	0·10
Ince-in-Makerfield	20,720	12	0·57	0·66	3	0·14
Irlam	14,520	1	0·06	0·64	1	0·06
Kearsley	10,750	6	0·55	0·40	1	0·09
Kirkham	4,139	2	0·48	0·43	—	—
Lancaster (B)	47,540	33	0·69	0·47	3	0·06
Lees	4,271	1	0·23	0·49	—	—
Leigh (B)	46,200	20	0·43	0·51	5	0·10
Leyland	12,240	7	0·57	0·38	1	0·08
Litherland	19,280	11	0·57	0·98	2	0·10
Littleborough	11,120	—	—	0·37	—	—
Little Lever	4,756	3	0·63	0·61	—	—
Longridge	3,978	1	0·25	0·58	—	—
Lytham St. Annes (B)	25,540	10	0·39	0·38	5	0·19
Middleton (B)	29,450	12	0·40	0·50	3	0·10
Milnrow	8,033	2	0·24	0·40	1	0·12
Morecambe and Heysham (B)	30,490	10	0·32	0·44	3	0·09
Mossley (B)	10,900	7	0·64	0·45	—	—
Nelson (B)	35,110	14	0·39	0·45	4	0·11
*Newton-le-Willows	20,460	11	0·53	0·59	2	0·09
Ormskirk	18,400	6	0·32	0·41	1	0·05

*The name of this Urban District was changed from Newton-in-Makerfield to Newton-le-Willows as from 1st March, 1939.

APPENDIX I (contd.).

County district.	Estimated population, 1938.	Pulmonary tuberculosis.			Non-pulmonary tuberculosis.	
		Number of deaths, 1938.	Death-rate per 1,000 of population, 1938.	Average death-rate 5 years, 1933-37.	Number of deaths, 1938.	Death-rate per 1,000 of population, 1938.
URBAN—continued.						
Orrell	8,541	2	0.23	0.38	—	—
Oswaldtwistle	12,620	6	0.47	0.50	1	0.07
Padiham	10,460	3	0.28	0.72	1	0.09
Poulton-le-Fylde	6,258	2	0.31	0.30	—	—
Preesall	2,018	1	0.49	0.09	—	—
Prescot	11,510	6	0.52	0.38	—	—
Prestwich	32,410	8	0.24	0.46	2	0.06
Radcliffe (B)	27,030	15	0.55	0.48	1	0.03
Rainford	3,680	2	0.54	0.38	—	—
Ramsbottom	14,940	5	0.33	0.57	—	—
Rawtenstall (B)	27,070	7	0.25	0.49	4	0.14
Rishton	5,857	4	0.68	0.44	1	0.17
Royton	15,520	9	0.57	0.59	—	—
Skelmersdale	6,052	1	0.16	0.45	—	—
Standish-with-Langtree	8,320	5	0.60	0.30	2	0.24
Stretford (B)	59,670	25	0.41	0.58	4	0.06
Swinton and Pendlebury (B)	40,360	20	0.49	0.46	2	0.04
Thornton Cleveleys	12,840	4	0.31	0.49	5	0.38
Tottington	6,138	3	0.48	0.31	—	—
Trawden	2,303	1	0.43	0.40	—	—
Turton	11,190	3	0.26	0.43	2	0.17
Tyldesley	18,650	13	0.69	0.51	1	0.05
Ulverston	9,317	4	0.42	0.36	1	0.10
Upholland	6,021	—	—	0.50	1	0.16
Urmston	32,030	13	0.40	0.39	4	0.12
Walton-le-dale	13,530	3	0.22	0.49	2	0.14
Wardle	4,305	3	0.69	0.40	—	—
Westhoughton	14,980	3	0.20	0.33	3	0.20
Whitefield	12,290	5	0.40	0.43	1	0.08
Whitworth	7,538	5	0.66	0.61	1	0.13
Widnes (B)	43,700	28	0.64	0.65	4	0.09
Withnell	2,772	—	—	0.48	—	—
Worsley	24,920	8	0.32	0.41	1	0.04
Total Urban	1,631,900	752	0.46	0.50	155	0.09
RURAL.						
Blackburn	12,520	3	0.23	0.37	1	0.07
Burnley	17,740	2	0.11	0.50	1	0.05
Chorley	24,380	5	0.20	0.26	2	0.08
Clitheroe	8,971	1	0.11	0.24	1	0.11
Fylde	9,441	1	0.10	0.56	—	—
Garstang	11,720	3	0.25	0.23	4	0.34
Lancaster	9,853	1	0.10	0.59	2	0.20
Limehurst	7,893	4	0.50	0.40	1	0.12
Lunesdale	6,308	1	0.15	0.15	1	0.15
Preston	34,420	8	0.23	0.34	4	0.11
Ulverston	15,950	2	0.12	0.35	—	—
Warrington	20,430	4	0.19	0.32	3	0.14
West Lancashire	34,350	10	0.29	0.34	1	0.02
Whiston	27,500	3	0.10	0.29	1	0.03
Wigan	7,224	2	0.27	0.43	—	—
Total Rural	248,700	50	0.20	0.35	22	0.08
Total for Administrative County	1,880,600	802	0.42	0.47	177	0.09
DISPENSARY AREA.						
No. 1	258,895	102	0.38	0.38	30	0.11
No. 2	319,084	120	0.37	0.46	32	0.10
No. 3	384,058	182	0.47	0.52	34	0.08
No. 4	371,926	162	0.43	0.48	32	0.08
No. 5	310,025	151	0.48	0.53	25	0.08
Furness	38,122	11	0.28	0.40	1	0.02
Fylde	89,548	30	0.35	0.46	13	0.15
Wigan County	108,942	44	0.40	0.51	10	0.09

APPENDIX II. TABLE B.

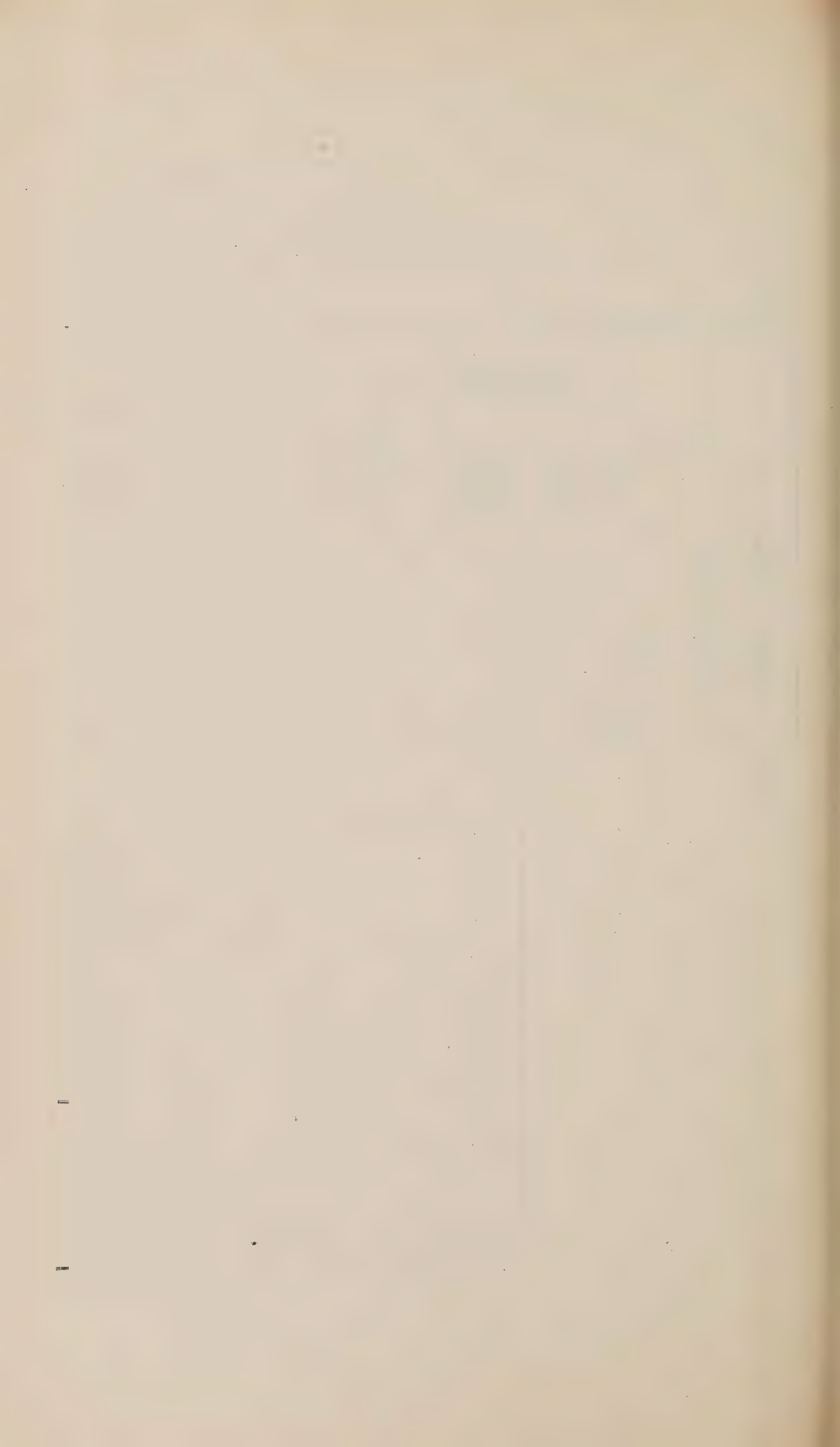
SUMMARY OF THE NOTIFICATIONS OF TUBERCULOSIS RECEIVED IN THE ADMINISTRATIVE COUNTY DURING THE YEAR 1938.

(Extracted from Weekly Returns of District Medical Officers of Health).

	NOTIFICATIONS ON SCHEDULE A—Excluding Duplicates.																																GRAND TOTAL	Total Notifications, (i.e., including cases previously notified by other doctors).										
	PULMONARY TUBERCULOSIS.						NON-PULMONARY TUBERCULOSIS.																																					
	Lungs only.	Lungs and Larynx.	Larynx.	Bronchial Glands.	Mediastinal Glands.	TOTAL	BONES AND JOINTS.															ABDOMINAL			GENITO-URINARY						PERIPHERAL GLANDS				MISCELLANEOUS.	TOTAL								
							Head (including Middle Ear).	Trunk		Arm					Leg					Intestines.	Peritoneum.	Mesenteric Glands.	Bladder.	Fallopian Tube.	Kidney.	Prostate.	Suprarenal.	Testicle and Epididymis.	Not classified (two or more).	MENINGITIS (Brain).	MILIARY Generalised).	SKIN Lupus).					Axillary.	Cervical.	Inguinal.					
								Ribs and Sternum.	Spine.	Shoulder.	Scapula.	Humerus.	Elbow.	Radius.	Ulna.	Hand and Wrist.	Hip and Pelvis.	Femur.	Knee.																					Tibia.	Fibula.	Foot and Ankle.	Two or more different joints.	Not classified.
Quarter ended 31st March, 1938	323	2	1	—	—	326	—	3	16	3	—	—	1	—	—	2	7	1	5	—	—	—	1	—	1	20	6	—	—	7	—	—	1	—	23	2	10	1	105	1	1	217	543	630
Quarter ended 30th June, 1938	333	4	—	—	—	337	—	2	8	—	—	1	1	—	—	3	7	—	2	—	1	—	2	—	4	18	10	2	—	7	—	—	1	2	10	—	3	1	116	—	11	220	557	636
Quarter ended 30th September, 1938	300	1	1	—	1	303	—	—	13	—	—	—	1	—	—	3	14	2	6	—	1	2	—	—	2	16	10	1	—	3	—	—	6	2	16	—	5	—	87	—	6	196	499	577
Quarter ended 31st December, 1938	257	1	—	2	1	261	—	—	12	—	—	—	—	—	—	—	7	—	3	—	—	5	—	—	8	5	—	—	8	—	—	5	3	4	—	8	3	95	1	5	172	433	511	
Total	1,213	8	2	2	2	1,227*	—	5	49	3	—	1	3	—	—	10	35	3	22	—	2	7	3	—	7	62	31	3	—	25	—	—	13	7	53	2	26	5	403	2	23	805*	2,032*	2,354

SEX		NOTIFICATIONS ON SCHEDULE 'A'.—Excluding Duplicates.																											GRAND TOTAL
		PULMONARY TUBERCULOSIS.												NON-PULMONARY TUBERCULOSIS.															
		AGE-GROUP—YEARS.											TOTAL	TOTAL M. & F.	AGE-GROUP—YEARS.											TOTAL	TOTAL M. & F.		
		0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and over			0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and over				
Quarter ended 31st March, 1938	M.	—	1	3	2	14	21	46	43	40	19	7	196	326	4	20	22	17	10	13	9	5	4	3	2	109	217	543	
	F.	—	—	—	6	27	20	34	17	13	11	2	130		2	18	16	14	19	8	21	5	3	1	1	108			
Quarter ended 30th June, 1938	M.	—	2	2	2	4	25	43	39	30	28	11	186	337	2	23	18	9	15	5	11	6	4	4	2	99	220	557	
	F.	—	2	2	—	28	32	44	17	17	2	7	151		3	10	20	17	9	14	21	12	3	1	2	121			
Quarter ended 30th September, 1938	M.	—	2	4	1	16	11	33	35	30	19	6	157	303	1	21	21	13	13	8	11	2	2	4	1	97	196	499	
	F.	—	—	—	7	26	30	39	20	9	10	5	146		—	18	19	15	11	6	15	4	2	4	5	99			
Quarter ended 31st December, 1938	M.	—	1	1	3	12	20	39	33	28	19	5	161	261	—	14	21	9	7	5	12	3	3	1	1	76	172	433	
	F.	—	1	2	2	16	12	28	22	10	6	1	100		1	14	25	16	9	5	10	6	6	3	1	96			
Total	M.	—	6	10	8	46	77	161	150	128	85	29	700	1,227*	7	78	82	48	45	31	43	16	13	12	6	381	805*	2,032*	
	F.	—	3	4	15	97	94	145	76	49	29	15	527		6	60	89	62	48	33	67	27	14	9	9	424			

*Corrected figures after deducting 49 pulmonary and 38 non-pulmonary cases notified in error by practitioners.



APPENDIX II. TABLE C.

ANALYSIS OF THE NOTIFICATIONS OF TUBERCULOSIS RECEIVED IN THE ADMINISTRATIVE COUNTY DURING THE YEAR 1938.

(Extracted from Weekly Returns of District Medical Officers of Health).

NOTIFICATIONS ON SCHEDULE A—Excluding Duplicates.

AGE—GROUPS AND SEX.	PULMONARY TUBERCULOSIS.						NON-PULMONARY TUBERCULOSIS.																											GRAND TOTAL	Pulmonary and non- pulmonary combined cases. *																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	Lungs only.	Lungs and Larynx.	Larynx.	Bronchial Glands.	Mediastinal Glands.	TOTAL	BONES AND JOINTS.										ABDOMINAL			GENITO-URINARY							PERIPHERAL GLANDS				TOTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
							Head (including Middle Ear).	Trunk		Arm					Leg					Intestines.	Peritoneum.	Mesenteric Glands.	Bladder.	Fallopian Tube.	Kidney.	Prostate.	Suprarenal.	Testicle and Epididymis.	Not classified (two or more).	Meninges (brain).		MILITARY Generalised).	SKIN Lupus).			Axillary.	Cervical.	Inguinal.	MISCELLANEOUS.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
								Ribs and Sternum.	Spine.	Shoulder.	Scapula.	Humerus.	Elbow.	Radius.	Ulna.	Hand and Wrist.	Hip and Pelvis.	Femur.	Knee.																					Tibia.	Fibula.	Foot and Ankle.	Two or more different joints.	Not classified.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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* Combined cases are included in the pulmonary total, but are shown separately for purpose of reference.

† Corrected figures after deducting 49 pulmonary and 38 non-pulmonary cases notified in error by practitioners.

APPENDIX II. TABLE D.

MALE AND FEMALE NOTIFIED CASES IN THE ADMINISTRATIVE COUNTY DURING THE YEARS 1918 TO 1938.

YEAR	SEX	PULMONARY TUBERCULOSIS.													NON-PULMONARY TUBERCULOSIS.													Total	Total* M. & F.
		0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and over	Total	Total* M. & F.	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and over	Total	Total* M. & F.		
1918	M	3	35	55	59	140	108	300	317	232	98	28	1,375	2,534	14	75	103	65	60	26	29	16	14	7	2	404	885		
	F	1	24	69	74	139	166	297	207	117	52	13	1,159		10	75	84	92	80	43	46	29	9	6	4	481			
1919	M	2	22	53	55	94	107	238	212	165	91	17	1,056	2,105	13	50	97	80	53	26	31	22	19	12	4	407	847		
	F	5	14	54	80	126	161	261	184	99	41	24	1,049		10	59	98	76	61	43	41	29	11	7	5	440			
1920	M	2	24	56	63	94	120	281	249	160	90	14	1,153	2,084	31	62	107	108	68	26	35	23	16	11	5	492	968		
	F	2	20	53	71	115	122	264	147	84	36	17	931		12	66	86	78	62	46	52	34	23	16	1	476			
1921	M	1	17	43	47	94	133	222	225	162	84	19	1,047	2,044	12	60	110	84	53	32	41	23	17	6	4	442	899		
	F	.....	12	53	77	132	160	255	156	82	50	20	997		15	62	89	81	65	41	53	15	21	9	6	457			
1922	M	3	16	38	47	83	120	227	190	148	99	27	998	1,863	18	101	111	79	55	37	39	22	13	7	3	485	956		
	F	4	15	45	57	135	135	202	146	61	42	23	865		13	77	80	95	61	45	50	24	14	7	5	471			
1923	M	2	10	41	43	82	132	236	207	147	94	13	1,007	1,937	18	115	134	105	75	35	45	22	14	15	6	584	1,188		
	F	1	14	43	60	115	149	251	149	83	49	16	930		14	103	110	107	68	60	64	31	28	14	5	604			
1924	M	.....	27	37	52	105	110	203	199	197	97	18	1,045	1,972	19	123	92	92	95	35	43	25	17	12	3	556	1,120		
	F	3	12	29	55	144	139	223	169	94	49	10	927		6	99	87	94	80	55	72	30	17	11	13	564			
1925	M	.....	22	32	38	81	115	212	200	192	74	24	990	1,846	17	108	106	73	58	37	53	26	15	12	5	510	1,027		
	F	3	10	24	44	144	153	198	136	85	34	25	856		9	86	84	91	82	41	57	33	18	10	6	517			
1926	M	1	9	27	40	91	113	210	198	158	110	23	980	1,828	10	90	97	76	75	29	35	32	16	7	3	470	953		
	F	2	12	41	47	114	169	224	120	68	38	13	848		19	83	94	51	67	56	51	34	17	6	5	483			
1927	M	1	11	47	39	115	111	197	187	185	85	19	997	1,794	12	101	131	87	66	38	40	18	13	4	7	517	1,045		
	F	.....	13	37	49	129	128	195	113	71	51	11	797		15	84	95	81	61	47	75	33	20	11	6	528			
1928	M	1	7	31	20	70	106	187	163	176	82	27	870	1,660	16	82	114	66	67	43	40	15	14	10	7	474	956		
	F	.....	6	33	32	126	147	195	125	62	44	20	790		13	69	100	70	56	63	50	27	21	8	5	482			
1929	M	4	7	32	17	80	99	160	180	165	76	23	843	1,517	17	98	99	67	52	37	40	22	16	7	5	460	913		
	F	.....	7	18	23	111	130	186	99	53	28	19	674		3	65	92	51	54	48	63	36	22	15	4	453			
1930	M	1	5	14	27	66	106	189	174	159	82	22	845	1,527	6	78	105	69	67	28	45	18	12	12	7	447	982		
	F	.....	3	13	29	104	122	186	107	61	37	20	682		12	67	100	80	63	63	71	35	28	13	3	535			
1931	M	2	8	15	18	75	118	153	159	161	89	25	823	1,460	13	67	78	63	63	34	40	15	20	10	7	410	862		
	F	.....	7	10	27	99	120	149	109	57	38	21	637		8	55	77	62	69	55	55	37	16	12	6	452			
1932	M	1	2	14	20	73	105	183	146	142	108	20	814	1,477	7	67	70	54	38	41	34	20	22	17	6	376	825		
	F	.....	3	19	33	97	146	160	92	58	41	14	663		7	43	86	70	63	53	63	24	19	15	6	449			
1933	M	2	4	10	19	70	84	186	171	155	85	27	813	1,453	10	94	76	41	36	34	41	23	10	13	5	383	780		
	F	.....	4	10	26	85	101	201	102	61	29	21	640		1	65	69	70	40	37	60	32	9	6	8	397			
1934	M	1	3	4	8	47	99	161	156	139	73	25	716	1,315	10	60	79	61	36	22	43	19	18	7	5	360	774		
	F	2	9	11	14	84	135	163	87	50	33	11	599		12	46	69	6	63	36	65	32	15	6	5	414			
1935	M	.....	6	8	14	61	97	152	145	122	81	34	720	1,305	4	59	62	52	38	31	30	24	14	11	4	329	672		
	F	.....	6	6	21	59	121	177	91	52	45	7	585		6	54	57	44	52	42	47	20	7	7	7	343			
1936	M	.....	2	12	10	51	79	143	130	150	96	21	694	1,248	4	87	86	60	32	34	33	14	9	10	9	378	722		
	F	.....	4	5	26	74	120	154	81	45	24	21	554		4	50	54	55	35	37	55	22	16	9	7	344			
1937	M	1	2	11	12	53	87	164	147	121	100	15	713	1,361	4	60	95	41	59	24	26	12	17	13	4	355	745		
	F	.....	2	6	17	86	117	189	81	51	39	13	601		5	47	73	53	37	50	62	33	18	9	3	390			
1938	M	.....	6	10	8	46	77	161	150	128	85	29	700	1,227	7	78	82	48	45	31	43	16	13	12	6	381	805		
	F	.....	3	4	15	97	94	115	76	49	29	15	527		6	60	89	62	48	33	67	27	14	9	9	424			

* Corrected figures from 1922 after deducting the following cases found to be non-tuberculous and notifications cancelled:--1922: 14 pulmonary, 12 non-pulmonary; 1923: 33 pulmonary, 31 non-pulmonary; 1924: 57 pulmonary, 28 non-pulmonary; 1925: 83 pulmonary, 49 non-pulmonary; 1926: 61 pulmonary, 41 non-pulmonary; 1927: 68 pulmonary, 51 non-pulmonary; 1928: 63 pulmonary, 52 non-pulmonary; 1929: 61 pulmonary, 44 non-pulmonary; 1930: 63 pulmonary, 55 non-pulmonary; 1931: 38 pulmonary, 49 non-pulmonary; 1932: 40 pulmonary, 45 non-pulmonary; 1933: 48 pulmonary, 51 non-pulmonary; 1934: 38 pulmonary, 51 non-pulmonary; 1935: 48 pulmonary, 40 non-pulmonary; 1936: 44 pulmonary, 29 non-pulmonary; 1937: 43 pulmonary, 56 non-pulmonary; and 1938: 49 pulmonary, 38 non-pulmonary.

APPENDIX III.

CENSUS OF TUBERCULOUS CASES on the dispensary registers on the 31st
December, 1938 (inclusive of 934 patients in sanatoria and hospitals).

Dispensary area.	Sex	Number of cases under supervision on 31-12-38.						Number of doubtful cases on 31-12-38	
		Pulmonary tuberculosis.		Non-pulmonary tuberculosis.		Total.	Number of cases per 1,000 of population.		
		Under 15 years of age.	15 years and over.	Under 15 years of age.	15 years and over.		Pul- monary.		Non- pulm.
No. 1	M.	12	225	121	104	923	1·70	1·85	11
	F.	10	195	90	166				
No. 2	M.	5	306	107	121	1,064	1·80	1·52	3
	F.	9	257	90	169				
No. 3	M.	12	526	144	169	1,559	2·49	1·56	2
	F.	9	410	89	200				
No. 4	M.	6	522	114	172	1,527	2·57	1·52	1
	F.	5	425	88	195				
No. 5	M.	17	398	113	93	1,164	2·38	1·37	20
	F.	10	314	100	119				
Furness	M.	7	87	13	31	265	4·48	2·46	3
	F.	8	69	21	29				
Fylde	M.	3	99	43	29	363	2·28	1·76	3
	F.	2	101	42	44				
Wigan County	M.	15	134	82	82	628	2·58	3·17	6
	F.	9	124	73	109				
Total	M.	77	2,297	737	801	7,493	2·30	1·68	49
	F.	62	1,895	593	1,031				
		4,331		3,162			3·98		

The populations of the dispensary areas were :—

Area No. 1	258,895	Area No. 2	319,084	Area No. 3	384,058	Area No. 4	371,926
Area No. 5	310,025	Furness	38,122	Fylde	89,548	Wigan County	108,942
Total for County.....1,880,600							

APPENDIX III (contd.).

ANALYSIS OF CASES on the dispensary registers on the 31st December, 1938.

(a) PULMONARY TUBERCULOSIS.

Age-groups.	Sex.	T.B. minus.		T.B. plus 1.		T.B. plus 2.		T.B. plus 3.		TOTAL.	
		Active	Quies.	Active	Quies.	Active	Quies.	Active	Quies.	Active	Quies.
0-5 years	M.	1	2	—	—	—	—	—	—	1	2
	F.	—	—	—	—	—	—	—	—	—	—
5-15 years	M.	25	42	1	2	3	—	1	—	30	44
	F.	11	35	5	2	7	—	2	—	25	37
15-25 years	M.	44	119	25	23	104	25	24	7	197	174
	F.	81	116	31	27	151	33	24	4	287	180
25-35 years	M.	41	90	53	47	203	102	21	7	318	246
	F.	72	122	62	53	250	90	23	7	407	272
35-45 years	M.	46	88	40	44	204	74	36	9	326	215
	F.	41	77	34	30	126	57	19	3	220	167
45-55 years	M.	52	78	38	27	155	49	26	1	271	155
	F.	21	45	15	15	53	39	7	3	96	102
55-65 years	M.	44	49	25	12	118	32	15	3	202	96
	F.	23	24	9	3	37	18	9	1	78	46
65 years and over	M.	19	17	2	7	36	11	3	2	60	37
	F.	8	7	3	2	13	4	2	1	26	14
All ages	M.	272	485	184	162	823	293	126	29	1,405	969
	F.	257	426	159	132	637	241	86	19	1,139	818
Grand Total		1,440		637		1,994		260		4,331	

(b) NON-PULMONARY TUBERCULOSIS.

Age-groups.	Sex.	Bones and joints (excluding spine).		Spine.		Abdomen.		Other organs.		Peri-pheral glands.		Skin.		TOTAL.	
		Act.	Quies.	Act.	Quies.	Act.	Quies.	Act.	Quies.	Act.	Quies.	Act.	Quies.	Act.	Quies.
0-5 years	M.	19	7	8	1	5	8	1	—	35	31	—	—	68	47
	F.	13	6	3	—	1	3	1	—	26	28	1	—	45	37
5-15 years	M.	61	56	25	18	14	43	1	—	105	287	5	7	211	411
	F.	28	39	10	23	13	31	1	3	110	245	4	4	166	345
15-25 years	M.	36	42	19	21	13	37	17	10	27	118	13	13	125	241
	F.	23	42	7	14	8	26	9	6	44	181	15	8	106	277
25-35 years	M.	17	34	16	14	4	8	12	11	15	38	23	5	87	110
	F.	16	16	13	15	18	23	13	11	42	76	41	14	143	155
35-45 years	M.	14	19	6	10	3	5	7	11	5	11	21	3	56	59
	F.	11	7	9	10	3	5	13	4	18	29	25	12	79	67
45-55 years	M.	12	8	3	7	1	3	1	8	2	7	9	3	28	36
	F.	9	11	8	5	4	3	2	6	4	26	18	15	45	66
55-65 years	M.	9	5	4	—	1	—	3	2	2	2	7	1	26	10
	F.	6	2	6	1	—	2	1	—	5	9	19	6	37	20
65 years & over	M.	6	5	1	1	—	—	2	2	1	1	3	1	13	10
	F.	4	6	3	2	—	2	3	—	3	2	10	1	23	13
All ages	M.	174	176	82	72	41	104	44	44	192	495	81	33	614	924
	F.	110	129	59	70	47	95	43	30	252	596	133	60	644	980
Grand Total		589		283		287		161		1,535		307		3,162	

APPENDIX IV.

HOUSING CONDITIONS of tuberculous patients in each dispensary area at the end of 1938.

	Pulmonary cases considered infectious.		Pulmonary cases considered not infectious.		Non-pulmonary cases.	
	Under 15 years of age.	15 years and over.	Under 15 years of age.	15 years and over.	Under 15 years of age.	15 years and over.
Patients occupying a separate bedroom :—						
Area No. 1	—	163	8	119	87	128
Area No. 2	1	146	3	106	41	86
Area No. 3	3	324	6	267	46	139
Area No. 4	3	329	4	361	68	137
Area No. 5	4	317	7	174	84	81
Furness Area	—	30	4	51	11	28
Fylde Area	—	46	1	59	19	26
Wigan County Area	—	59	5	54	13	57
Total	11	1,414	38	1,191	369	682
Patients occupying a separate bed but not a separate bedroom :—						
Area No. 1	1	30	6	9	51	19
Area No. 2	1	126	4	82	89	66
Area No. 3	2	102	4	98	118	82
Area No. 4	1	37	2	67	61	56
Area No. 5	—	53	10	42	79	42
Furness Area	—	18	9	29	17	12
Fylde Area	—	24	4	29	35	15
Wigan County Area	1	40	9	53	71	60
Total	6	430	48	409	521	352
Patients not occupying a separate bed :—						
		*				
Area No. 1	—	8	7	91	73	123
Area No. 2	—	32	5	71	67	138
Area No. 3	—	22	6	123	69	148
Area No. 4	—	10	1	143	73	174
Area No. 5	—	27	6	99	50	89
Furness Area	—	2	2	26	6	20
Fylde Area	—	1	—	41	31	32
Wigan County Area	—	—	9	52	71	74
Total	—	102	36	646	440	798
GRAND TOTAL	17	1,946	122	2,246	1,330	1,832

*Of the above adult infective patients without a separate bed at home, the following were in sanatoria or pulmonary hospitals at the end of 1938 :—

Area No. 2 4 Area No. 3 5 Area No. 4 5 Area No. 5 3
Total 17

APPENDIX V.

Return showing the WORK OF THE DISPENSARIES during the year 1938.

(Tables A and B of Memorandum 37/T (Revised) of the Ministry of Health).

DIAGNOSIS.	PULMONARY.				NON-PULMONARY.				TOTAL.				GRAND TOTAL.	
	Adults.		Children.		Adults.		Children.		Adults.		Children.			
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
A.—NEW CASES examined during the year (excluding contacts) :—														
(a) Definitely tuberculous	583	407	7	21	151	195	184	192	734	602	191	213	1,740	
(b) Diagnosis not completed	—	—	—	—	—	—	—	—	12	16	4	11	43	
(c) Non-tuberculous	—	—	—	—	—	—	—	—	1,399	1,172	364	314	3,249	
B.—CONTACTS examined during the year :—														
(a) Definitely tuberculous	7	14	3	1	—	1	3	2	7	15	6	3	31	
(b) Diagnosis not completed	—	—	—	—	—	—	—	—	—	1	2	3	6	
(c) Non-tuberculous	—	—	—	—	—	—	—	—	193	390	240	236	1,059	
C.—CASES written off the dispensary registers as :—														
(a) Recovered	116	110	2	4	127	156	93	101	243	266	95	105	709	
(b) Non - tuberculous (including any such cases previously diagnosed and entered on the dispensary registers as tuberculous)	—	—	—	—	—	—	—	—	1,609	1,578	607	554	4,348	
D.—NUMBER OF CASES on dispensary registers on 31st December, 1938 :—														
(a) Definitely tuberculous	2,297	1,895	77	62	801	1,031	737	593	3,098	2,926	814	655	7,493	
(b) Diagnosis not completed	—	—	—	—	—	—	—	—	12	17	6	14	49	

1. Number of cases on dispensary registers on 1st January, 1938	7,405	7. Number of consultations with medical practitioners:—	
		(a) Personal	560
		(b) Other	7,427
2. Number of cases transferred from other areas and cases returned after discharge under Head 3 in previous years	308	8. Number of visits by tuberculosis officers to homes (including personal consultations)	4,642
3. Number of cases transferred to other areas, cases not desiring further assistance under the tuberculosis scheme, and cases "lost sight of"	457	9. Number of visits by nurses or health visitors to homes for dispensary purposes	42,306
4. Cases written off during the year as dead (all causes)	785	10. Number of:—	
		(a) Specimens of sputum, etc., examined	6,223
		(b) X-ray examinations made in connection with dispensary work	13,054
5. Number of attendances at the dispensaries (including contacts)	28,123	11. Number of "recovered" cases restored to dispensary registers, and included in A(a) and A(b) above	43
6. Number of insured persons under domiciliary treatment on the 31st December, 1938	1,423	12. Number of "T.B. plus" cases on dispensary registers on 31st December, 1938	2,891

Number of dispensaries for the treatment of tuberculosis (excluding centres used only for special forms of treatment).

Provided by the Council 25

Provided by Voluntary Bodies Nil.

APPENDIX VI.

Return showing the extent of RESIDENTIAL TREATMENT AND OBSERVATION during the year 1938 in institutions (other than Poor Law institutions) approved for the treatment of tuberculosis.

(Table D of Memorandum 37/T (Revised) of the Ministry of Health).

		In institu- tions on Jan. 1st.	Admitted during the year.	Discharged during the year.	Died in the institu- tions.	In institu- tions on Dec. 31st.
Number of doubt- fully tuberculous cases admitted for observation.....	Adult males	8	73	72	1	8
	Adult females	7	34	31	1	9
	Children	14	43	37	—	20
	Total	29	150	140	2	37
Number of patients suffering from pul- monary tubercu- losis	Adult males	330	645	521	136	318
	Adult females	296	516	402	105	305
	Children	36	30	26	2	38
	Total	662	1,191	949	243	661
Number of patients suffering from non- pulmonary tuber- culosis	Adult males	65	133	122	12	64
	Adult females	43	121	114	5	45
	Children	133	186	184	8	127
	Total	241	440	420	25	236
GRAND TOTAL		932	1,781	1,509	270	934

APPENDIX VII.

Return showing the extent of RESIDENTIAL TREATMENT provided during the year 1938 IN POOR LAW INSTITUTIONS for persons chargeable to the Council.

(Table E of Memorandum 37/T (Revised) of the Ministry of Health).

		In institu- tions on Jan. 1st.	Admitted during the year.	Discharged during the year.	Died in the institu- tions.	In institu- tions on Dec. 31st.
Number of patients suffering from pul- monary tubercu- losis	Adult males	10	83	53	29	11
	Adult females	7	41	28	14	6
	Children	—	5	5	—	—
	Total	17	129	86	43	17
Number of patients suffering from non- pulmonary tuber- culosis	Adult males	5	14	6	10	3
	Adult females	6	23	20	5	4
	Children	5	29	23	8	3
	Total	16	66	49	23	10
GRAND TOTAL		33	195	135	66	27

APPENDIX VIII.

Return showing the results of OBSERVATION OF DOUBTFULLY TUBERCULOUS CASES discharged during the year 1938 from institutions approved for the treatment of tuberculosis.

(Table F of Memorandum 37/T (Revised) of the Ministry of Health).

Diagnosis on discharge from observation.	For pulmonary tuberculosis.						For non-pulmonary tuberculosis.						TOTALS.		
	Stay under 4 weeks.			Stay over 4 weeks.			Stay under 4 weeks.			Stay over 4 weeks.					
	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.
Tuberculous	10	2	—	6	3	2	5	1	4	7	2	3	28	8	9
Non-tuberculous	2	5	2	24	14	13	5	1	2	8	2	9	39	22	26
Doubtful	—	—	—	1	—	1	2	1	—	2	—	1	5	1	2
Died	*1	—	—	—	†1	—	—	—	—	—	—	—	1	1	—
TOTALS	13	7	2	31	18	16	12	3	6	17	4	13	73	32	37

*Cause of death : Carcinoma of lung.

†Cause of death : (a) Cardiac muscle failure, (b) myocarditis, (c) pulmonary abscess.

APPENDIX IX.

Return showing the IMMEDIATE RESULTS OF TREATMENT of definitely tuberculous patients discharged during the year 1938 from institutions approved for the treatment of tuberculosis.

(This table is based on Table G of Memorandum 37/T (Revised) of the Ministry of Health).

Classification of admission to the institution.		Condition at time of discharge.	Duration of residential treatment in the institution.															GRAND TOTALS.
			Under 28 days.			1-3 months.			3-6 months.			6-12 months.			More than 12 months.			
			M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	
PULMONARY TUBERCULOSIS.	T.B. minus.	Quiescent	—	—	—	6	7	—	18	15	1	11	14	6	5	1	6	90
		Improved	4	1	—	6	7	1	22	9	1	7	15	—	2	6	—	81
		N.M.I.	6	5	—	1	—	—	1	1	—	—	1	—	—	—	—	15
		Died	6	2	1	—	3	—	1	—	—	—	—	—	—	—	—	13
	T.B. plus 1.	Quiescent	—	—	—	1	1	—	3	1	—	7	5	—	4	7	1	30
		Improved	—	1	—	9	1	—	5	6	—	12	11	2	3	5	1	56
		N.M.I.	3	—	—	2	1	—	1	3	—	2	1	—	—	1	—	14
		Died	3	—	—	—	1	—	1	1	—	—	—	—	—	—	—	6
	T.B. plus 2.	Quiescent	—	—	—	2	3	—	4	2	—	11	12	—	12	14	2	62
		Improved	6	3	—	40	13	1	62	35	—	73	53	—	27	42	—	355
		N.M.I.	16	8	—	22	18	—	23	22	—	16	14	1	8	4	—	152
		Died	15	13	—	24	18	—	13	14	—	23	10	1	11	5	—	147
	T.B. plus 3.	Quiescent	—	—	—	—	—	—	3	—	—	2	1	—	1	2	1	10
		Improved	1	—	—	7	1	—	6	5	—	3	6	1	5	4	1	40
		N.M.I.	8	3	—	5	4	—	11	3	—	4	3	—	2	1	—	44
		Died	16	9	—	13	17	—	6	6	—	2	3	—	2	3	—	77
	TOTALS (pulmonary)			84	45	1	138	95	2	180	123	2	173	149	11	82	95	12	1,192
NON-PULMONARY TUBERCULOSIS.	Bones and joints.	Quiescent	—	—	—	1	3	3	4	5	5	4	9	9	12	5	37	97
		Improved	5	2	2	3	5	2	3	3	4	3	2	4	4	4	8	54
		N.M.I.	1	1	3	2	1	1	2	—	—	—	—	—	2	—	1	14
		Died	1	—	1	2	1	1	—	—	—	2	1	—	1	—	1	11
	Abdominal.	Quiescent	—	—	1	5	2	7	2	4	11	2	1	1	1	1	—	38
		Improved	3	2	2	1	3	4	—	1	2	1	—	—	—	—	—	19
		N.M.I.	1	4	—	1	—	2	—	—	—	—	—	—	—	—	—	8
		Died	—	—	—	—	2	—	—	—	—	—	—	1	—	—	1	4
	Other organs.	Quiescent	2	—	—	2	1	1	1	3	1	—	1	—	1	—	—	13
		Improved	8	5	1	8	5	3	3	2	—	2	1	—	1	—	—	39
		N.M.I.	4	1	—	2	1	—	—	—	—	—	1	—	—	—	—	9
		Died	2	—	2	2	—	—	1	—	—	—	—	—	1	—	—	8
	Peripheral glands.	Quiescent	5	5	8	1	2	6	1	1	7	—	—	4	—	—	1	41
		Improved	12	23	35	1	2	6	2	—	—	2	—	—	—	—	—	83
		N.M.I.	1	2	1	—	—	1	—	—	—	—	—	—	—	—	—	5
		Died	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	2
	TOTALS (non-pulmonary)			45	45	57	31	29	37	19	19	30	16	16	19	23	10	49	445

N.M.I.=No material improvement.

"Died" comprises deaths in the institution only.

APPENDIX X.

DEFINITIONS observed in CLASSIFYING CASES and recording results of treatment (in accordance with Memorandum 37/T (Revised) of the Ministry of Health, extracts from which are quoted below).

CLASSIFICATION OF PATIENTS SUFFERING FROM TUBERCULOSIS.

For the purpose of the Annual Returns required under this Memorandum, and of the case records necessary to enable these returns to be completed, the following system of classification of cases and of recording results should be used :—

I.—All patients should be grouped according to their sex and age ; patients under 15 years of age should be classed as children, and those of 15 years and upwards as adults.

II.—Patients should then be classified according to the organs or parts affected as follows :—

(1) Pulmonary tuberculosis (including tuberculosis of the pleura or intra-thoracic glands).

(2) Non-pulmonary tuberculosis

Patients suffering from both pulmonary and non-pulmonary tuberculosis should be classified as pulmonary cases.

III.—Patients suffering from pulmonary tuberculosis should be divided into :—

Class T.B. minus, *viz.*, cases in which tubercle bacilli have never been demonstrated in the sputum, pleural fluid, faeces, etc., and

Class T.B. plus, *viz.*, cases in which tubercle bacilli have at any time been found.

It should be noted that a patient originally in Class T.B. minus must be transferred to Class T.B. plus at any stage in the course of treatment if and when tubercle bacilli are found, while on the other hand a patient who is once placed in Class T.B. plus can never be included in Class T.B. minus. Class T.B. plus should be further sub-divided into three groups as follows :—

Group 1.—Cases with slight constitutional disturbance, if any ; *e.g.*, there should not be marked acceleration of pulse nor elevation of temperature except of very transient duration ; gastro-intestinal disturbance or emaciation, if present, should not be excessive.

The obvious physical signs should be of very limited extent as follows : Either present in one lobe only, and in the case of an apical lesion of one upper lobe, not extending below the second rib in front or not exceeding an equivalent area in any one lobe ; or where these physical signs are present in more than one lobe, they should be limited to the apices of the upper lobes, and should not extend below the clavicle and the spine of the scapula.

No complication (tuberculous or other) of prognostic gravity should be present. A small area of dry pleurisy should not exclude a case from this group.

Group 3.—Cases with profound systemic disturbance or constitutional deterioration, with marked impairment of function, either local or general, and with little or no prospect of recovery.

All cases with grave complications (*e.g.*, diabetes, tuberculosis of intestine, etc.), whether those complications are tuberculous or not, should be classified in this group.

Group 2.—All cases which cannot be placed in Groups 1 and 3.

APPENDIX X (contd.).

IV.—Patients suffering from non-pulmonary tuberculosis should be classified according to the site of the lesion as follows :—

- (1) Tuberculosis of bones and joints.
- (2) Abdominal tuberculosis (*i.e.*, tuberculosis of peritoneum, intestines or mesenteric glands).
- (3) Tuberculosis of other organs.
- (4) Tuberculosis of peripheral glands.

Patients suffering from multiple lesions should be classified in one sub-group only, *viz.*, in that applicable to the case which stands highest in the immediately preceding list.

RESULTS OF TREATMENT.

The following terms should be used to describe the results of treatment :—

- “ QUIESCENT.”—Cases which have no symptoms of tuberculosis and no signs of tuberculous disease, except such as are compatible with a completely healed lesion, and in which sputum, if present, is free from tubercle bacilli.
- “ ARRESTED.”—Cases in which, if pulmonary, the disease has been “ quiescent ” for a period of at least two years, or, if non-pulmonary, the disease is “ quiescent ” and there is reason to believe that it is unlikely to recur.
- “ RECOVERED.”—Cases in which arrest of the disease has been maintained for at least three years.
-

APPENDIX XI.

Number of BEDS OCCUPIED BY COUNTY PATIENTS undergoing residential treatment for pulmonary and non-pulmonary tuberculosis on the 31st December, 1938.

Institution.	Pulmonary tuberculosis.		Non-pulmonary tuberculosis.		Total.
	Adults.	Children.	Adults.	Children.	
<i>(a) Institutions for pulmonary tuberculosis.</i>					
Aitken Sanatorium, near Bury	46	—	—	—	46
Barrowmore Tuberculosis Sanatorium and Settlement, Great Barrow, Chester	31	—	—	—	31
Chadderton Pulmonary Hospital, near Oldham	40	1	—	—	41
Cleaver Sanatorium, Heswall, Cheshire	—	1	—	—	1
Cotswold Sanatorium, Cranham, Gloucestershire	2	—	—	—	2
Eastby Sanatorium, near Skipton	—	15	—	4	19
Eccleston Hall Sanatorium, St. Helens	6	4	—	—	10
Elswick Sanatorium, near Preston	64	1	—	—	65
Halifax Sanatorium, Shelf	5	—	—	—	5
Heath Charnock Pulmonary Hospital, near Chorley	32	—	—	—	32
Hefferston Grange Sanatorium, Weaverham, Cheshire	6	—	—	—	6
High Carley Sanatorium, near Ulverston	116	3	—	—	119
King Edward VII Sanatorium, Midhurst, Sussex	1	—	—	—	1
Lancaster Pulmonary Hospital	33	—	—	—	33
Linford Sanatorium, near Ringwood, Hants.	1	—	—	—	1
Liverpool Sanatorium, Frodsham, Cheshire	1	—	—	—	1
Mundesley Sanatorium, Norfolk	1	—	—	—	1
Oubas House Children's Sanatorium, Ulverston	—	4	—	7	11
Papworth Village Settlement, Papworth Hall, Cambridge	1	—	—	—	1
Peel Hall Pulmonary Hospital, Little Hulton	56	1	—	—	57
Pemberton Pulmonary Hospital, Wigan	4	—	—	—	4
Rufford Pulmonary Hospital, near Ormskirk	49	1	—	—	50
Springfield Sanatorium, Rochdale	16	—	—	—	16
Westmorland Sanatorium, Meathop, Grange-over-Sands	6	—	—	—	6
Wilkinson Sanatorium, near Bolton	1	—	—	—	1
Withnell Pulmonary Hospital, near Chorley	49	—	—	—	49
Wolstenholme Pulmonary Hospital, Norden, Rochdale	34	—	—	—	34
Total	601	31	—	11	643
<i>(b) Training colonies.</i>					
Barrowmore Tuberculosis Sanatorium and Settlement, Great Barrow, Chester	4	—	—	—	4
British Legion Village, Aylesford, Kent	1	—	—	—	1
Burrow Hill Sanatorium Colony, Frimley, Surrey	—	—	1	—	1
Derwen Cripples' Training College, Oswestry	—	—	3	—	3
Papworth Village Settlement, Papworth Hall, Cambridge	1	—	—	—	1
Total	6	—	4	—	10
<i>(c) Institution with accommodation for combined tuberculosis.</i>					
Wrightington Hospital, near Wigan	16	7	—	—	23
<i>(d) Beds occupied by observation cases.</i>					
Aitken Sanatorium, near Bury	1	—	—	—	1
Barrowmore Tuberculosis Sanatorium and Settlement, Great Barrow, Chester	1	—	—	—	1
Chadderton Pulmonary Hospital, near Oldham	1	—	—	—	1
Eastby Sanatorium, near Skipton	—	2	—	—	2
Elswick Sanatorium, near Preston	4	—	—	—	4
High Carley Sanatorium, near Ulverston	5	—	—	—	5
Oubas House Children's Sanatorium, Ulverston	—	8	—	—	8
Royal Lancaster Infirmary	—	—	—	2	2
Wrightington Hospital, near Wigan	—	—	5	8	13
Total	12	10	5	10	37

APPENDIX XI (contd.).

Institution.	Pulmonary tuberculosis.		Non-pulmonary tuberculosis.		Total.
	Adults.	Children.	Adults.	Children.	
(e) <i>Institutions for non-pulmonary tuberculosis.</i>					
Ashton-under-Lyne District Infirmary	—	—	1	—	1
Liverpool Open-air Hospital, Leasowe, Cheshire	—	—	12	29	41
Liverpool Royal Infirmary	—	—	1	—	1
Royal Liverpool Children's Hospital, Heswall, Cheshire	—	—	—	6	6
Salford Royal Hospital	—	—	1	—	1
Warrington Infirmary	—	—	—	1	1
Wrightington Hospital, near Wigan	—	—	90	80	170
Total	—	—	105	116	221
GRAND TOTAL	635	48	114	137	934
	683		251		

N.B.—The number of beds occupied fluctuates during the course of the year, there being a greater demand for beds in the summer than in the winter. In July, 1939, the beds occupied totalled 973, and in July, 1938, 976.

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